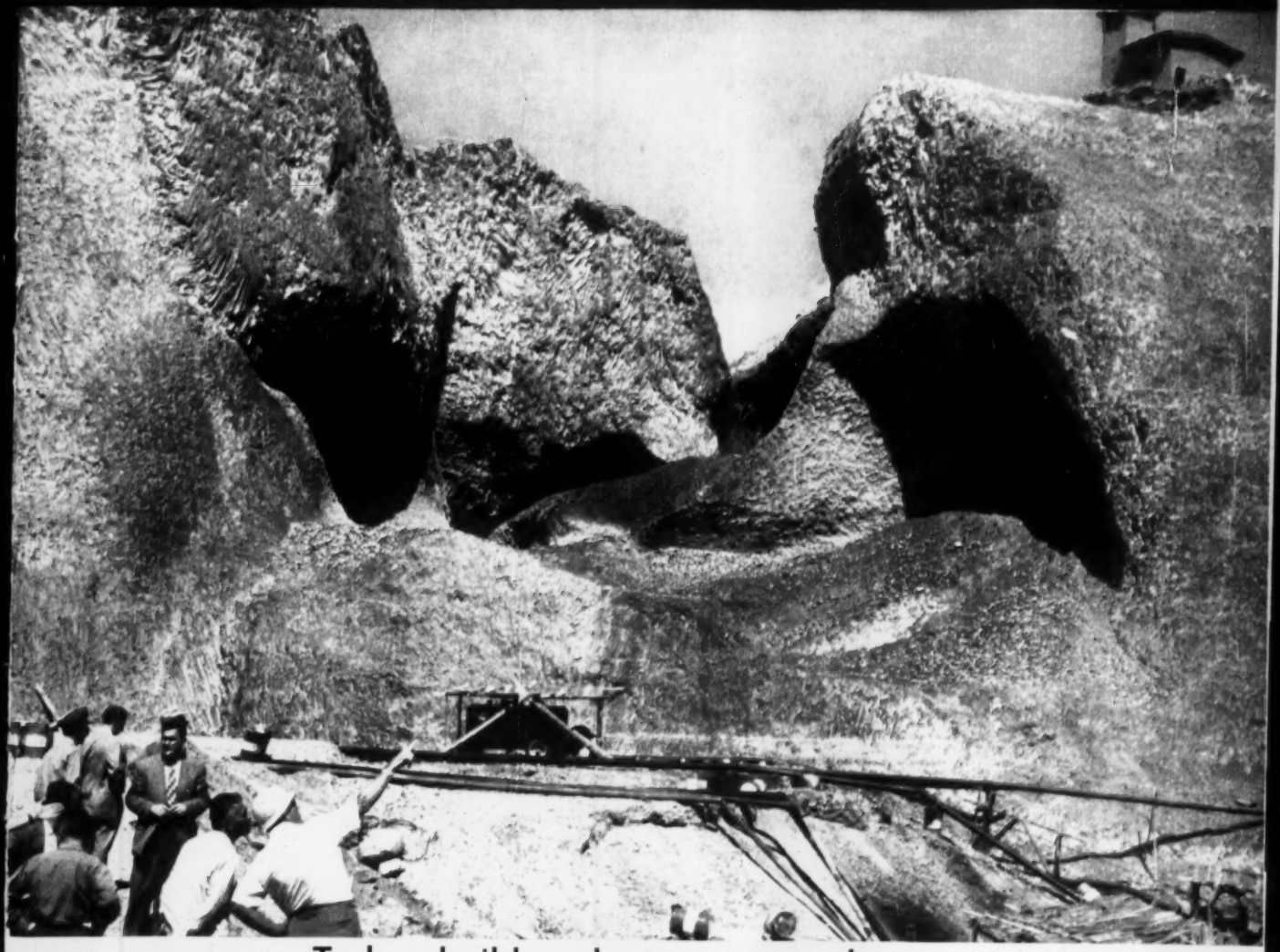
# ENGINEERING NEWS-RECORD



Turkey builds a dam on spongy lava

A McGRAW-HILL PUBLICATION

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CB&I GLOBAL REPRESENTATION FOR

# A WORLD OF EXPERIENCE

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# Bethlehem Slabform used in constructing floors of new Philadelphia apartment building

In constructing the floors of this apartment building near City Line Avenue, in Philadelphia, shown here during construction, the builders used Bethlehem Slabform, a sturdy, permanent steel base and form for poured floors over steel joists.

Bethlehem Slabform helped to make construction both simple and rapid, resulting in savings in time and cost, and a sturdy installation.

By eliminating the sag that occurs with flexible centerings, Slabform resulted in a saving of ½ in. or more of concrete. Finishing operations could be started sooner, because of the solidity of the steel form.

Concrete leakage was prevented, greatly reducing clean-up costs. "Incipient cracking," a common cause of trouble with flexible centering, was eliminated. And because water could not run off during curing, the finished concrete was measurably stronger.

Further, Bethlehem Slabform is so rigid that it provided a safe working platform for all trades, yet could be cut to fit around openings using ordinary tin shears.

Slabform may be fastened to joist chords by any of these three methods: Bethlehem clips, self-tapping screws, or welding.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

*On the Pacific Coast* **Bethlehem** *products are sold by* **Bethlehem** *Pacific Coast* **Steel** *Corporation. Export Distributor:* **Bethlehem** *Steel Export Corporation*

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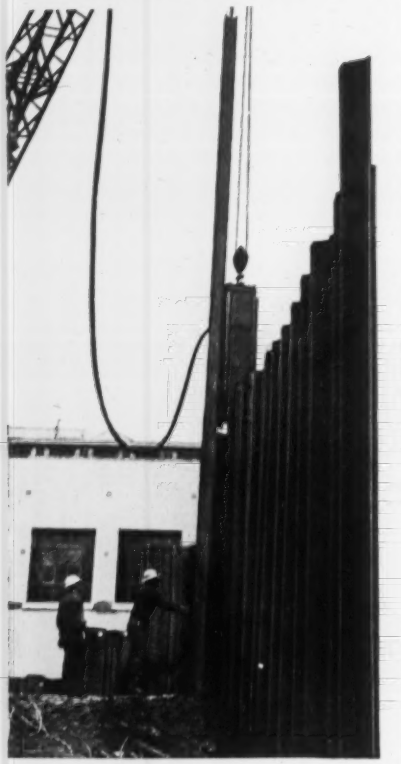
## At 3 P.M....

# CAVE-IN!



Cave-ins will happen, through no fault of the contractor. On this excavation job, there was erratic soil behavior, shifting loads, saturating rain . . . everything unpredictable.

When it happened, L. B. Foster Co. was called at 3 P.M. for rental steel-sheet piling *in a rush*. We cut MP-116 piling in our yard, and delivered it in Foster trucks to the job site 400 miles away before the crews started work next morning.

This is typical of the dependable help contractors can expect . . . and get . . . with Foster's Piling Rental Plan. Always the exact length and exact section . . . when you need it . . . on low fixed cost. Call your nearest Foster office for quotations—find out for yourself the real savings in Renting Piling from Foster.

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EIGHTY-THIRD YEAR OF PUBLICATION

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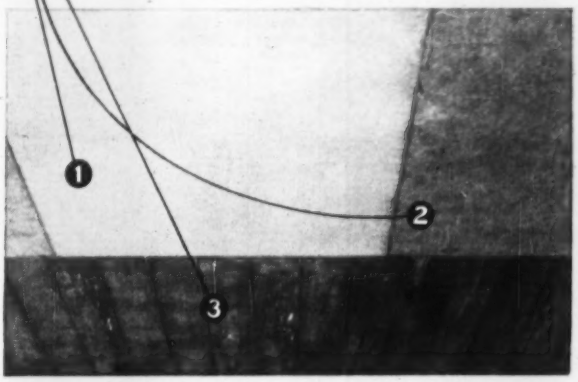
# 3 reasons why PLYGLAZE® high-density* overlaid plywood outperforms any form material on the market

## 1. FORMS SMOOTHER CONCRETE

Hard, glossy-smooth fused resin-fiber surfaces form flawlessly smooth concrete, with no trace of grain pattern. Unretouched photo shows marked difference in appearance quality of concrete cast against PlyGlaze, ordinary plywood and shiplap.

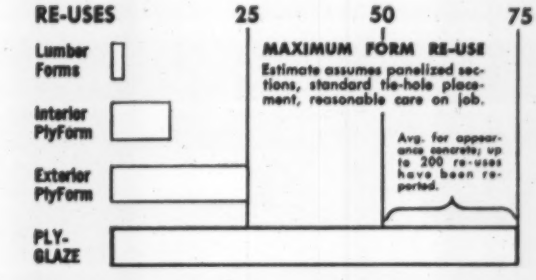
**RELATIVE APPEARANCE OF CONCRETE**

| | Up to 50% of Max. Re-Use | Up to 100% of Max. Re-Use | Where to Use |
|---|---|---|---|
| 1. PLYGLAZE | Excellent | Good | For smoothest concrete, maximum re-uses |
| 2. PLYFORM | Good to Fair | Fair to Poor | For fairly smooth concrete, multiple re-uses |
| 3. LUMBER | Poor | Very Poor | Where appearance and re-use not important |




## 2. GIVES MANY MORE RE-USES

PlyGlaze's tough, hard surface stands up under hundreds of pours. With reasonable care, you'll easily get 50 to 75 re-uses. Actually over 200 have been obtained—and even then PlyGlaze continued to form good looking concrete.




## 3. HELPS CUT COSTS TWO WAYS

**A. TIME & LABOR SAVINGS**—Sharply reduces rubbing and finishing labor. Ceiling slabs can be painted direct, eliminating expensive plastering. PlyGlaze also cuts form construction, erection and stripping time. High re-use factor eliminates form reconstruction during job.

**B. LOW COST PER USE**—Even when cost is sole criterion, greater number of PlyGlaze re-uses frequently more than make up for higher initial cost, particularly where costs can be amortized over 25 or more pours.

**COST PER-SQUARE-FOOT-PER-USE**

| No. Re-Uses ➤ | 1 | 10 | 25 | 50 | 100 | 200 |
|---|---|---|---|---|---|---|
| PLYGLAZE | $0.375 | .038 | .015 | .008 | .004 | .002 |
| Exterior PLYFORM | .234 | .023 | .009 | Gives Max. 25 Re-Uses | | |
| Interior PLYFORM | .218 | .022 | Gives Maximum 10-12 Re-Uses | | | |
| LUMBER | .110 | Gives Maximum 2-3 Re-Uses | | | | |

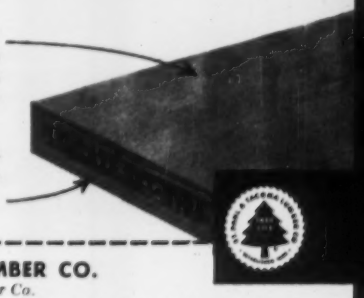
Estimates based on 30 month average for prices quoted by St. Paul & Tacoma for following material delivered in Chicago: ¾" PlyGlaze; ¾" Ext. & Int. PlyForm, mill oiled, edge sealed; 2 & btr. 1" green Douglas fir or hemlock.

## POINTS IN BRIEF

- Has the strength, workability and adaptability of ordinary plywood.
- Strips easily; the non-absorbent surfaces will not stick to the concrete.
- No oiling is needed between the pours other than to facilitate cleaning.
- Overlay will not soften or come loose. Unharmed by alkaline reaction.
- Overlay minimizes moisture pickup and the resultant loss of rigidity.

Hard, glossy, translucent high density* fused-resin fiber overlay bonded to both sides of panel. Resin content controlled to give exact amount of hardness and wear resistance required for form work.

Base panel is top quality DFPA-Inspected solid core Exterior fir plywood. Available in all standard sizes, thicknesses.



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*HIGH DENSITY (glossy, translucent overlay) is special concrete form panel. MEDIUM DENSITY overlay (opaque with texture similar to drawing paper) is paint grade; not for form work.

# OVER 12,000 YDS. A DAY WITH

With 300 h.p. engines and 4 speed Torqmatic Drives, the S-18 Scrapers maintained fast cycle time in spite of the 6500′ elevation and steep return grades.

On one side-hill cut the S-18 "Eucs" loaded at the top of the cut and hauled to the toe of the fill—510′ difference in elevation!

Loaded by a 4½ yd. shovel, the 22-ton Rear-Dump "Eucs" move heavy excavation from a cut where the granite had to be drilled and shot.

Good stability resulting from the low, wide bowl design, easy hydraulic operation, and plenty of power and traction enabled the "Eucs" to get heaped loads averaging 15 bank yds. of decomposed granite in a hurry.

***"Euc" Scrapers are your best investment—have your Euclid dealer show you why!***

# 8 "Euc" S-18 SCRAPERS

## on a job so tough that "scrapers couldn't be used!"

Isbell Construction Co. knows what a tremendous difference high production Euclid equipment makes on their earthmoving jobs. Thirty years ago this contractor used a spread of mule-drawn ½ yd. Fresno scrapers in building a road (now U. S. Route 50) through rugged mountain country between Carson City, Nevada and Lake Tahoe.

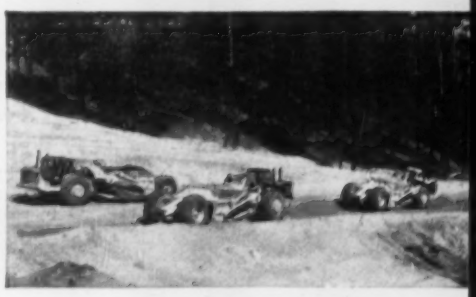
Today on a nine-mile section of this same road, at about 6500′ elevation, Isbell is relocating the road to eliminate hairpin curves and steep grades. Other contractors who bid the job didn't think scrapers could be used—figured their estimates on the basis of using shovels and trucks to move the more than 3⅓ million yards of excavation. But Isbell had experience with Model S-18 "Eucs" equipped with Torque Converters and knew what these 18 yd. scrapers could do on tough work.

In spite of having to work in close quarters on the mountain side, and climbing return grades as much as 27%, scrapers have moved about 80% of the yardage in cuts up to 230′ and fills to 160′. Eight of the S-18's are working 20 hours a day and on a section with a 400′ one-way haul and return with a 20% adverse grade they complete a cycle in 7 minutes. A fleet of 10 Rear-Dump "Eucs" of 22-ton capacity and three 15-ton models are used where the heavy granite must be shot and shovel loaded.

EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

◀ **Fills on the 9 mile project average 50′ to 100′ in height, with the highest being 190′—they make it possible to keep grades on the new 4-lane road to an average of 5%.**

**Up and down they go—the S-18 "Eucs" carry their heaped loads of 15 bank yds. or more down 400 feet of 20% grade, dump on the fill, and climb back for another load—each scraper makes 7 to 8 trips per hour.** ▶



# Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

EUCLID

# COAST TO COAST...

**Daytona Beach, Fla.**—16" flexible joint cast iron pipe being installed for water line crossing Halifax River. .

**Across the nation, thousands of forward-looking communities use cast iron pipe for their water, gas and sewerage systems. For good reason! Nearly seventy American cities are still being served by cast iron mains laid over a century ago. This outstanding record for long life is unmatched by any other pipe!**

**What's more, the *modernized* cast iron pipe, centrifugally cast, today is even stronger, longer-lasting, more uniform.**

**When mains are needed, specify cast iron pipe. It's America's foremost pipe . . . for performance, dependability, economy. The record proves it!**

# CAST IRON PIPE

# IT'S CAST IRON PIPE

**Cleveland, Ohio**—Over one half million gallons of sludge are pumped daily through 13 miles of 12" cast iron force main to the Southerly Sewage Treatment Works.

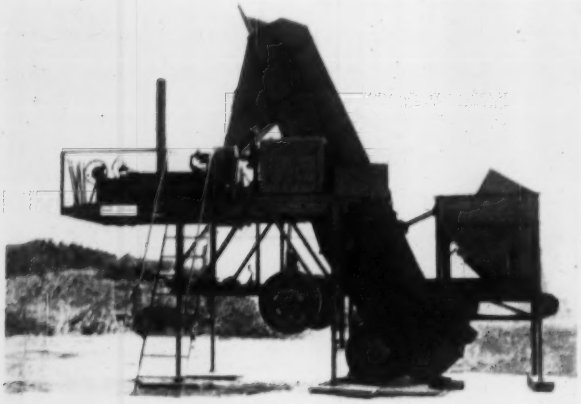
**Portuguese Bend, Calif.**—Cast iron pipe and fittings for salt water line at Oceanarium, Marineland of the Pacific.

CAST IRON

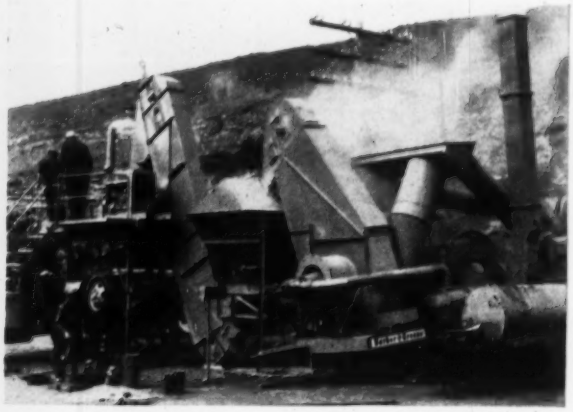
Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, Suite 3440, Prudential Plaza, Chicago 1, Ill.

## SERVES FOR CENTURIES...

# Start with an asphalt plant that can grow with your business



**Begin with a mixer, elevator and hopper,** and you're set to produce stabilized and cold bituminous mixes at capacities of more than 50 t.p.h. For a low initial investment, the Barber-Greene 840-B gives you big plant features and flexibility.



**Later add a dryer** to produce hot mixes (to 45 t.p.h.) suitable for nearly every type of paving job. With an aggregate feeder to control cold feed gradation, the complete range of hot mixes can be produced—except specs requiring screening after drying.

**For high type mixes, expand operations with a gradation unit** to produce mixes (to 45 t.p.h.) to meet any specification. A complete line of dust collectors, cold feeders, mineral feeders is available to meet all of your requirements.

**Get big plant features with the low cost Model 840-B.** A new, longer twin shaft pugmill, hydraulically operated pugmill discharge hopper, interlocked proportioning, speedy setup, unexcelled portability—all provide more production and profit.

56-5A

**Barber-Greene** BG

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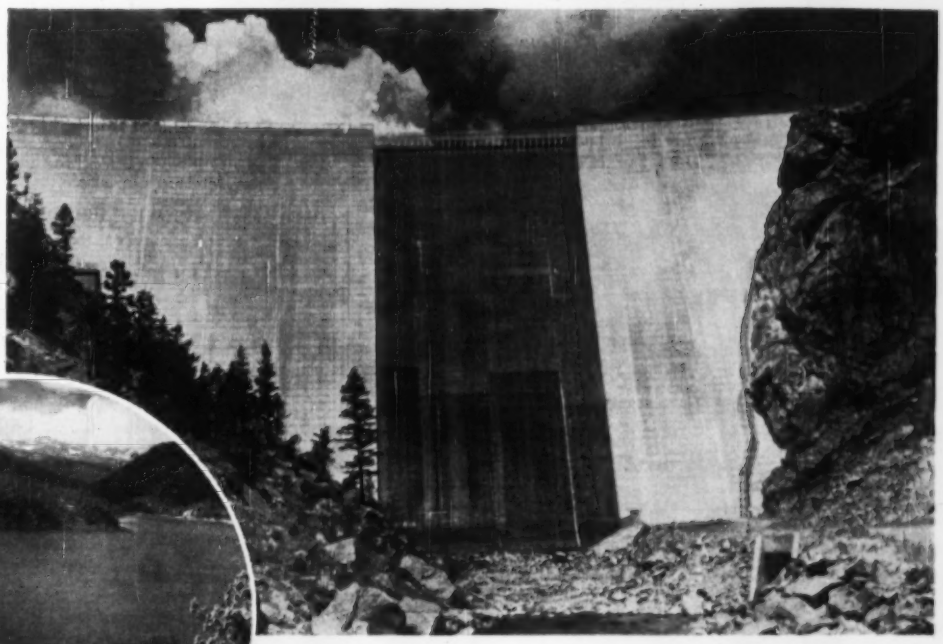
CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT



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# Expandable Gross Dam Stores Denver Water

Gross Dam is an excellent example of the versatility of concrete in making possible the expansion of present structures for future needs.

It is 340 feet high—stores 42,000 acre-feet of water, or approximately one-sixth of Denver's total water storage capacity. This water from the melting snows of winter and summer rainfall on Denver's Rocky Mountain watersheds provides the essential year-round water supply needed for a city of three quarters of a million people.

625,000 cubic yards of concrete were used in the present dam structure. For the future, the dam can be enlarged by increasing its height 120 feet to 460 feet, and its thickness. To do this, the present reservoir need not be de-watered, as the thickening and raising of the dam would be accomplished on the outside face. Total capacity of the enlarged dam would nearly triple present reservoir storage to 113,000 acre-feet of water.

Today's dam answers today's needs for water. Tomorrow's expanded structure is an excellent demonstration of the versatility of concrete in solving a difficult construction problem. Gross Dam is built 100% of Ideal Cement concrete.

PORTLAND IDEAL CEMENT

## IDEAL CEMENT COMPANY

**DENVER, COLORADO**

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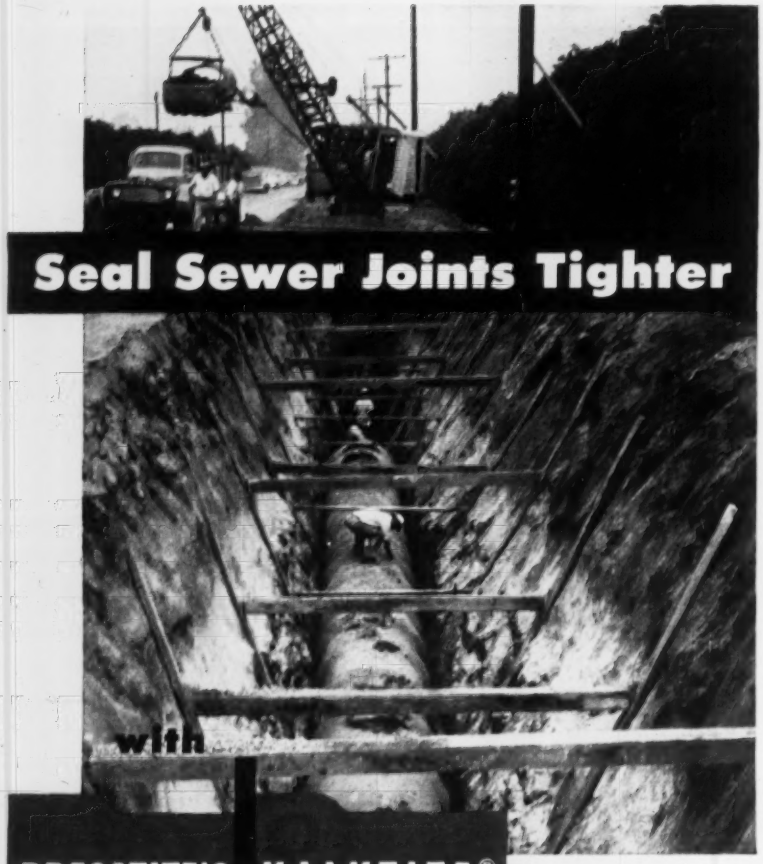
*Some of the Most Rapidly Growing Areas of the Nation*

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Over the past 30 years, the Presstite Sealing System has been thoroughly service-proved by many leading engineers and contractors. They will assure you it's the easiest, most economical way to get strong, tight joints that eliminate practically all ground water infiltration.

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|---|---|
| PRIMER | Improves bond between pipe and sealing compound. |
| ROPAX® | Non-porous, adhesive packing. Compresses to form additional seal impervious to water. |
| KALKTITE® | Cold mixed and cold applied. Dense, flexible, asphaltic cement. Sets internally; unaffected by hot, cold, wet or dry conditions. |

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# Reader Comment

## Cement Temperature

SIR—The May 9 issue of ENR, p. 164, carried an editorial titled, "Sign of the Season," in which hot weather concreting was discussed. In the editorial was the statement, ". . . cement at high temperatures (150 F. or higher) should not be used". Our technical people don't think this statement is correct and were unhappy to see it given the prestige of appearing on ENR's editorial page.

The subject of "hot cement" always has been a misunderstood one, as you well know. Our laboratories have done quite a bit of research on it, and have shown pretty conclusively that the temperature of cement at the time of mixing is of significance only insofar as it affects the temperature of the concrete. Since a relatively small amount of cement of low specific heat is used in the mixture, its temperature is of minor significance as compared with that of the aggregates and water.

Undoubtedly you are familiar with this subject, as are many of your readers. But in case more information is desired on the question, may I suggest our booklet, "Hot Cement and Hot Weather Concrete Tests", by William Lerch of our laboratories.

Another source of information for your readers is the May, 1957, Journal of the ACI, which includes a report on "Hot Weather Concreting Problems" by ACI Committee 605. This report summarizes current ACI thinking on the problem. While presented in late February, unfortunately it did not come out until after your editorial appeared.

RICHARD G. KNOX
*Manager, Public Relation Bureau*
*Portland Cement Association*
*Chicago, Ill.*

## Are We Just Trading Time?

SIR—Enjoyed your interesting article, "How to Step Up Your Design and Drafting Efficiency" (ENR Sept. 12, p. 38). Also "amen" to your editorial on the same and the suggestion Uniform Drafting Standards, Symbols, Codes, etc., to be set up to be used by all industries.

**Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.**

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**AMPLE DEFLECTION**
Photo shows how easily Clow Bell-Tite joints handle casual curves or normal grades without fittings.

**TIGHT JOINTS**
Full length, restrained joint, bursting tests prove Bell-Tite joint, even fully deflected, is stronger than the pipe.

**FAST INSTALLATION**
Above, Clow 8" Bell-Tite pipe being installed at the rate of 25 joints per hour. No bell holes are required.

**SIMPLE ASSEMBLY**
Wipe clean, lubricate, and push spigot into bell. When painted yellow stripe disappears, joint is bottle-tight!

# CLOW BELL-TITE JOINT*

## *cast iron pipe*

Here's the new time-saving, labor-saving, money-saving way to lay watermain. A single gasket, rubber seal joint that requires no bolts or follower glands to make a tight, dependable joint. Listed by the Underwriters' Laboratories, Inc., for water working pressures up to 350 psi, the pipe itself meets all applicable provisions of AWWA, ASA, and Federal Specifications. Complete details gladly rushed to you on request.

SINCE 1878

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## . . . Reader Comment

Being a former tool engineer, I remember efforts expended in this direction during World War II. However, I would like to see a breakdown of savings beyond design and drafting time. So many articles on the subject only cover the engineering time. Extend the savings study into actual construction and training of any and all employees concerned with it.

With hourly rates of construction men and others equal to or greater than those of designers and draftsmen, are we merely trading drafting time for construction and other time?

To cite an example: in one company a pamphlet with about 300 abbreviations was submitted to the engineering department to save hand print and stenographic time. It is my opinion that interpreting and using the pamphlet will take as much time in design and drafting, including interpreting one's train of thought in using it, as any time saved and will require much more training time and time lost in confusion errors for all concerned.

To sum it up: Are we merely trading time? Is there any economical limit beyond which the number of such short cuts can be carried?

J. Stanley Jeffery
*Jackson, Mich.*

## Superimposing Drawings

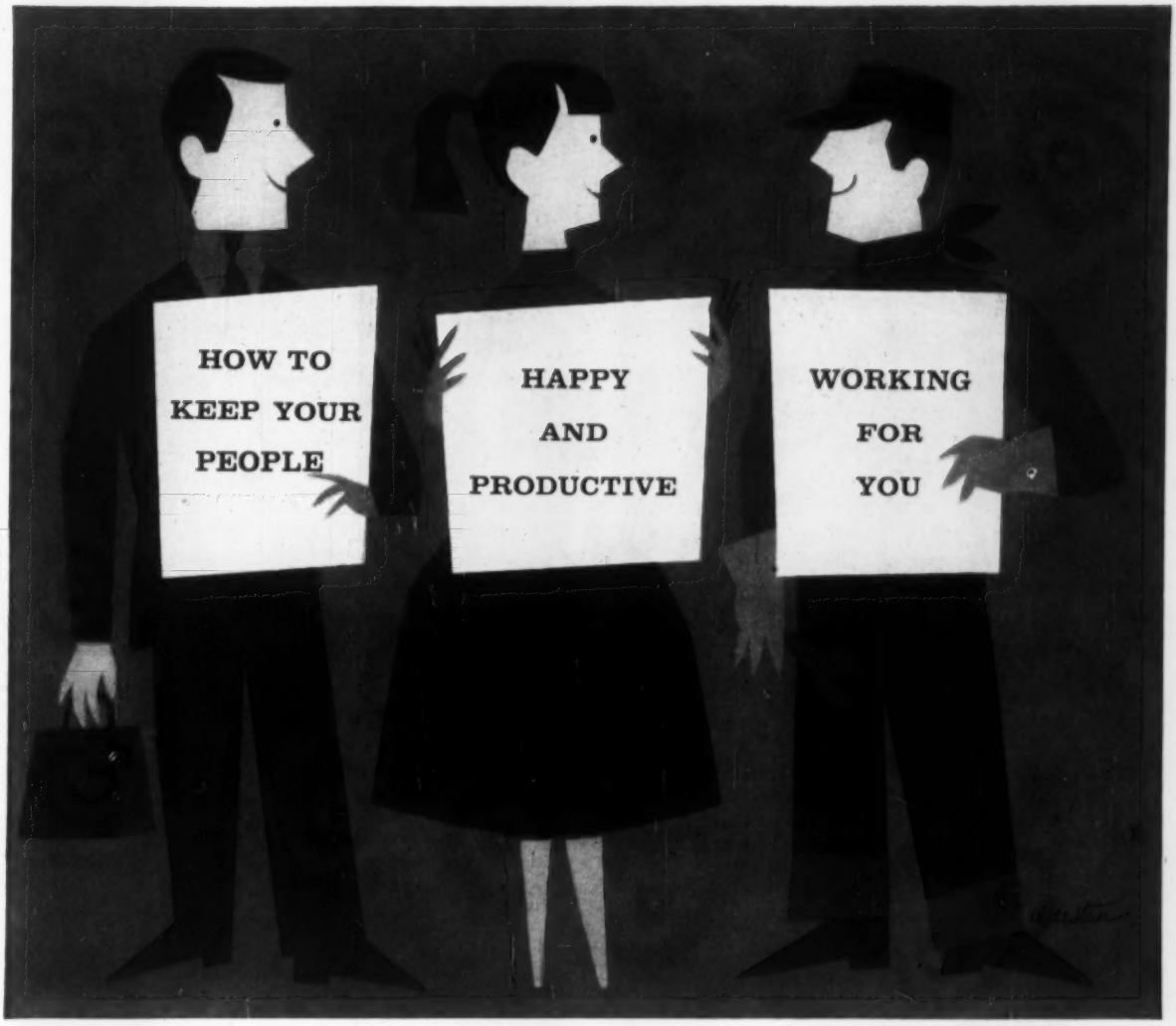
Sir—In the article, "How to Boost Your Design and Drafting Efficiency," (ENR Sept. 12, p. 41), the illustration, "Reproductions", does not carry the idea of superimposing far enough. Superimposing should also be used to check drawings to see if mechanical and electrical details are not competing for the same space or spots in the structure.

Superimposing the drawings in the drafting room before they are sent to the field would show what conflicts exist and just where to move what before time and materials have been wasted making corrections in the field.

Robert F. Mirick
*Corps of Engineers*
*Seattle, Wash.*

## CALENDAR

**Society for Experimental Stress Analysis,** annual meeting, Hotel El Cortez, San Diego, Calif., Oct. 9-11.
**American Society of Civil Engineers,** Hotel Statler, New York, N. Y., Oct. 14-18.
**National Safety Congress and Exposition,** Hotels Conrad Hilton, Congress, Morrison, La Salle and Hamilton, Chicago, Ill., Oct. 21-25.
**Engineers' Council for Professional Development, Engineers Joint Council,** joint annual general assembly, Hotel Statler, New York, N. Y., Oct. 24-25.

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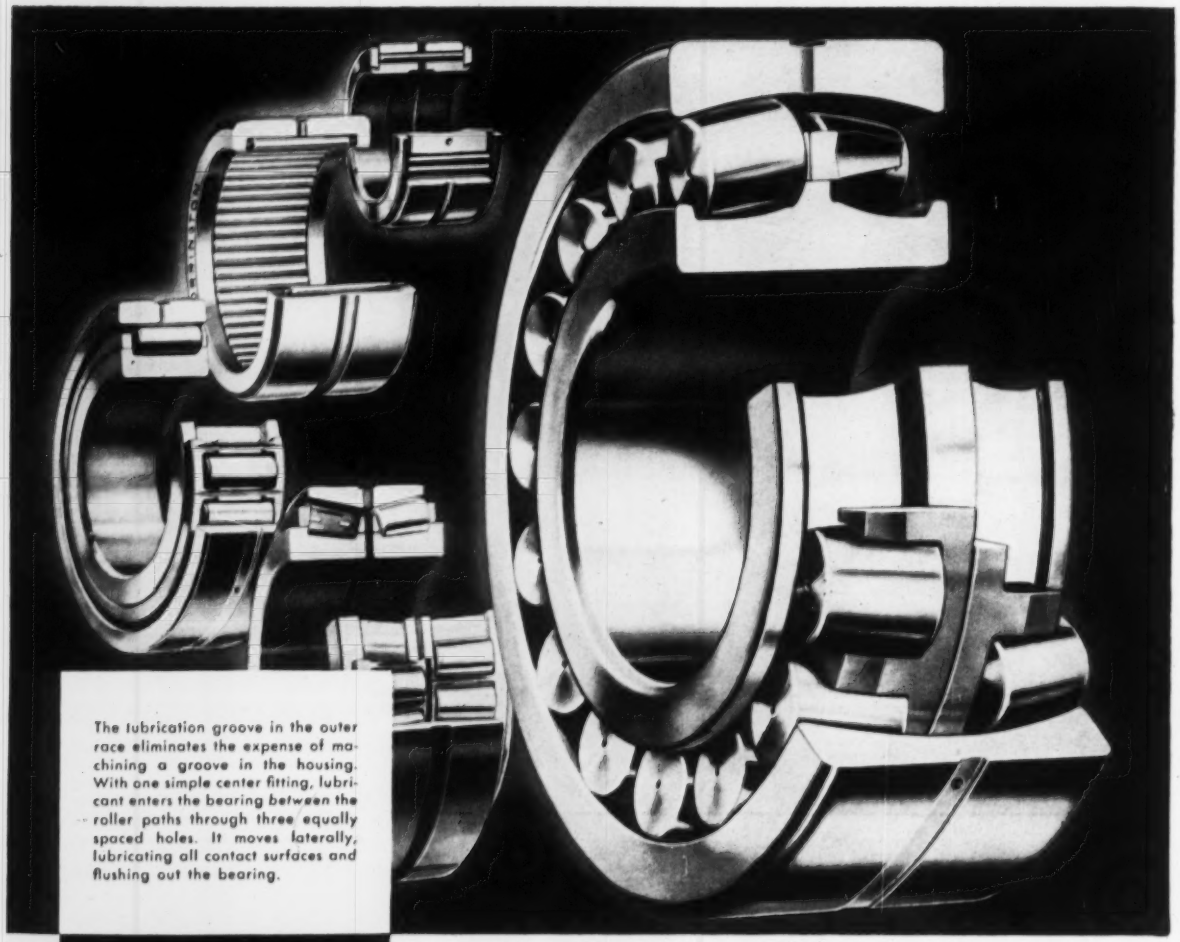
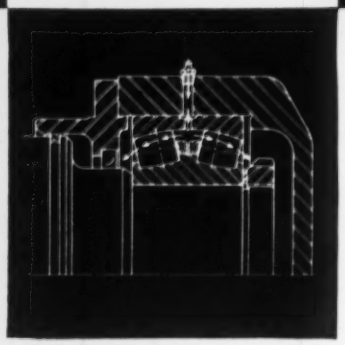


The lubrication groove in the outer race eliminates the expense of machining a groove in the housing. With one simple center fitting, lubricant enters the bearing *between* the roller paths through three equally spaced holes. It moves laterally, lubricating all contact surfaces and flushing out the bearing.



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# ENGINEERING NEWS-RECORD

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# THE CONSTRUCTION WEEK

**NEEDLES TO HEAD EJC?**—The nominating committee of Engineers Joint Council has come up with a prominent civil engineer as its choice to head the organization through the next calendar year. Enoch R. Needles, who was president of the American Society of Civil Engineers in 1956 and who heads one of the nation's biggest consulting firms, is the official EJC nominee. He would succeed Joseph W. Barker, current EJC president. Election takes place Nov. 15 at an EJC board meeting.

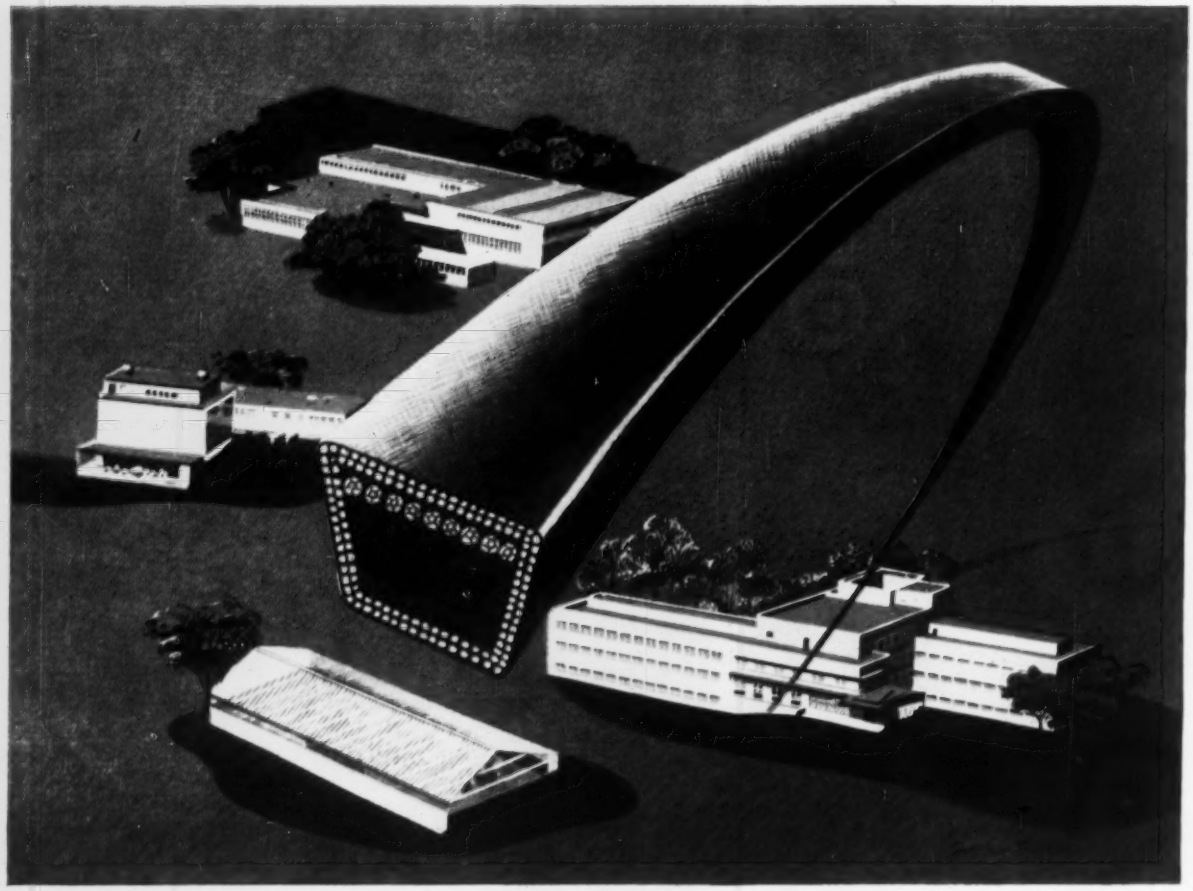
**COLUMBIA RIVER REPORT**—About $2 billion worth of water resources projects are slated for the Columbia River Basin according to preliminary findings released last week by the Corps of Engineers. Public hearings on these projects will now be held, to be followed by publication of a final "308 review" report in June, 1958. The preliminary report timetabled the advent of thermal power in the Pacific Northwest: Hydro through 1965; one-third of 1985 load to be supplied by thermal generation; two-thirds of the 2000 load from thermal sources. Complete flood-control plans were drawn both including and excluding Canadian storage projects.

**ROW OVER CAPITOL GROWS**—Influential members of the House and Senate have stated their opposition to plans for a 32½ ft extension of the east facade of the Capitol building (see p. 23). They are expected to submit measures at the next session of Congress for repeal of 1955 legislation authorizing the extension. However, chances for repeal are slim since House Speaker Sam Rayburn, who is also chairman of the Joint House-Senate Commission for the Extension of the Capitol, is in favor of the change and he wants it in time for the 1961 Presidential inauguration.

**WATER FOR DETROIT**—Latest development in the three-way tug of war over who is going to supply the Detroit metropolitan area with water is an order by the Detroit Water Board to spend $100,000 for preliminary design of an $80 million tap of Lake Huron. Such a project would supply—for all time—Wayne County to the south of Detroit and Oakland and Macomb Counties to the north.

The City of Detroit's action is intended to block the $50 million Wayne County project, which would draw from the Detroit River below Detroit. Bids were taken on Sept. 12 for the Wayne County project (ENR Dec. 20, 1956, p. 30), but progress is being held up by a private citizen's law suit. Oakland and Macomb Counties also are planning to go it alone, with their own tap of Lake Huron.

UNITENSION V-BELTS



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# WASHINGTON OBSERVER

- Building trades aid for Hoffa
- AGC opposes FCC radio scheme
- Dim view of U.S. pollution grants
- New book for public works planning

● **Some construction unions may bolt the AFL-CIO and follow Jimmy Hoffa's teamsters.** This week's defense of the beleaguered new teamster boss by carpenter's president Maurice Hutcheson is the first sign, and may point toward an eventual formal break between some building trades unions and the federation (see also page 21).

These unions have been unhappy in the federation. Their ties are closer to the teamsters. A break won't be abrupt. First, they'll try to keep the AFL-CIO from expelling the teamsters, but chances of success are nil. After that, look for the unions to start choosing up sides.

---

● **Government proposes to realign the industrial radio spectrum, and this has construction interests up in arms.**

Here's the background: Federal Communications Commission would like to abolish the special industrial radio service, a high-priority group of frequencies available to a select group of business interests, contractors among them. FCC proposes to replace this service with a so-called business radio service. Licensed stations would be reduced to a maximum of 180 watts of power (some now use up to 500 watts) and just about anybody engaged in a legitimate business enterprise would be eligible to seek a license.

**Associated General Contractors has stated the industry's case.** AGC says, "The special industrial radio service . . . serves many of our members very well and we are opposed to a basic change" in either permissible power use or in the long-standing concept of limited eligibility.

Next move is up to FCC. The agency likely will call for public hearings.

---

● **President Eisenhower rates pollution control grants as an expendable federal program**—one that can be shifted over to the states.

Compensating tax sources would, of course, have to be handed over to the states along with the new responsibility to provide the grants-in-aid for localities needing more sewage treatment facilities. This sort of thing is what state governors and federal officials explored further in Chicago last week. Ten governors and seven Administration representatives were present, to continue discussions on federal-state responsibilities first begun two months ago (ENR Aug. 15, p. 23) by the joint Federal-State Action Committee on Inter-Governmental relations.

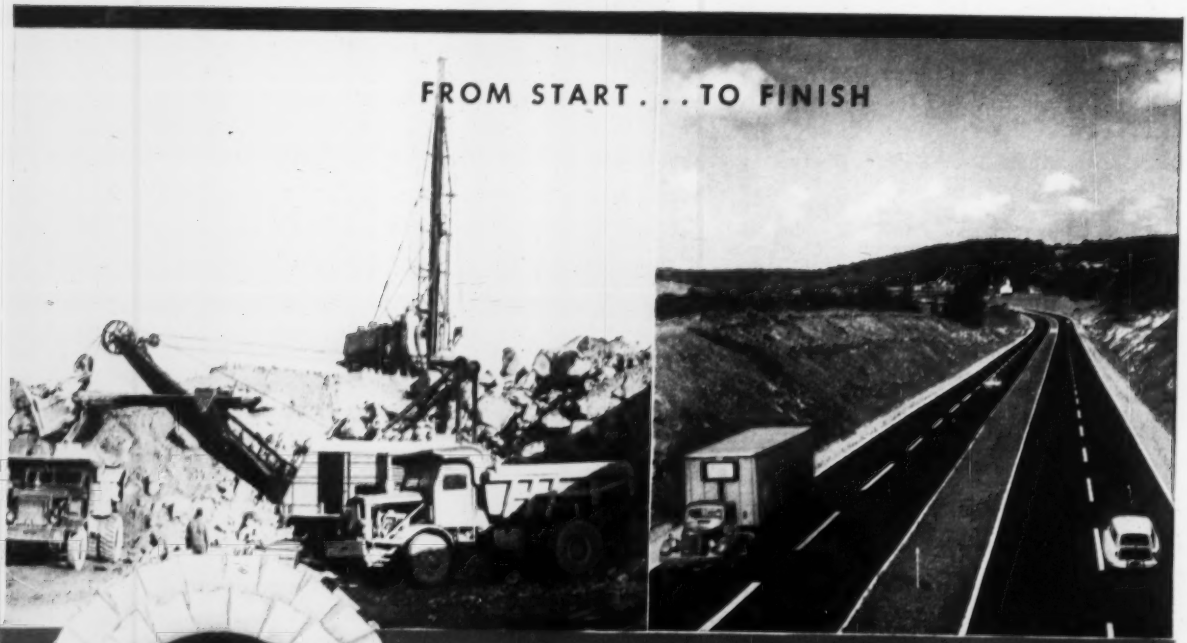
**The outlook**, as appraised by hard-headed Washington realists, is that nothing is going to happen very soon. Congress is under continual pressure to provide more, not less, federal aid for states and municipalities.

---

● **Easier public works planning** at the local government level is the aim of a new brochure that is available to anyone who wants it.

Maj. Gen. John S. Bragdon, White House public works coordinator, released the 25 page illustrated planning brochure two weeks ago for the first time at the Southern Governors Conference.

To get a copy of the booklet, "Planning for Public Works," send 30 cents to the Superintendent of Public Documents, U. S. Government Printing Office, Washington 25, D. C.

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**James R. Hoffa and President Dave Beck come out on top as . . .**

# Teamsters Gamble Not to Lose

In a loud and costly demonstration of defiance, the International Brotherhood of Teamsters last week told the AFL-CIO to "go to hell" and picked hard-hitting James R. Hoffa and his cohorts to lead the union across the troubled waters that lie ahead.

The action was taken at the teamsters' convention, held with all the emotional and brassy trappings of a national political convention in the big Municipal Auditorium at Miami Beach. Ensconced in 15 plush hotels, some 2,500 delegates, alternates, guests and their wives attended—and, according to outgoing President Dave Beck's estimate, spent between $2 million and $2.5 million.

Public reaction was instantaneous and foreboding.

U. S. Secretary of Labor James P. Mitchell immediately predicted expulsion of the teamsters from the AFL-CIO. He saw a "strong possibility" of serious jurisdictional warfare if the union spins off into an orbit of its own, and said he expected Congress would now enact "more repressive" legislation.

Sen. John McClellan, head of the Senate Select Committee that originally opened Pandora's box, took the view that the victorious Hoffa machine has "dared" Congress to rescue rank-and-file union members and the public from the "nefarious menace of gangsterism and racketeer control." Obviously anxious to assist a determined group of 13 union members in their efforts to unseat Mr. Hoffa on the grounds he was fraudulently elected, the Senate Committee immediately subpoenaed all records in relation to delegate credentials in the hands of the convention's Credentials Committee. (This is the same group that last week unsuccessfully asked U. S. Supreme Court Chief Justice Earl Warren to reinstate an injunction that would have barred election of union officers.)

But perhaps the note most immediately ominous for the AFL-CIO—and the public—came from Maurice Hutcheson, president of the carpenters union, who lost no time in sending a congratulatory message to Mr. Hoffa when the convention closed. It was the first public indication of non-teamster Hoffa support from a member of the federation's Executive Council. It increased speculation that the building trades unions might be persuaded to secede from the AFL-CIO and stick with the teamsters, if that union is ousted and if the building trades' complaints against jurisdictional encroachments by industrial unions aren't settled to their satisfaction. This would kill, within two years of their birth, the hopes and aspirations on which the united labor movement was founded, and could plunge organized labor into one of its most bitter periods of civil war.

Because of its jurisdictional complex, no union is more strategically situated than the teamsters. It represents one tenth of the AFL-CIO membership, and it reaches deep into a host of private industries, including construction, bakery, automotive, brewery, cannery, taxi, trucking, dairy, warehouse and laundry, as well as into municipal enterprises. It's in this network, Mr. Beck declared last week, that the only real security for the teamsters lies. He

## . . . Sobered by a charge of election rigging

**DAVE BECK** (left) and James Hoffa watch Credentials Committee Chairman Roy Williams check list of delegates. Validity of Mr. Hoffa's election faces a court challenge.

recommended that the union build up alliances with other unions "on the waterfront, at the railheads and everywhere else the teamsters have strategic power."

Few underestimate the implications of such a plan, and if it comes to pass the whole framework of labor unity may well collapse. And whether the building trades ditch the teamsters or not, the fate of present alliances hangs in doubt. Among them is the mutual assistance Four Way Pact of teamsters, operating engineers, laborers and carpenters in the construction industry.

Unless the 44-year-old Mr. Hoffa is outmaneuvered, he will assume the $50,000 a year teamster presidency on or shortly after Oct. 15. That means he will personally lead the union in its showdown with the AFL-CIO when the federation's Executive Council meets in New York Oct. 24 to decide whether the teamsters have purged themselves of corruption charges lodged against them.

• **The new look**—Through the efforts of Mr. Hoffa, who loudly proclaims that the teamsters want to stay in the AFL-CIO, a number of steps were taken to appease the federation and to win a year's reprieve before final judgment is made. Among them were these:

• Mr. Beck, already removed from the inner councils of the AFL-CIO, was denied the title and emoluments of president emeritus.

• Frank Brewster and Sidney Brennan, two international vice presidents on the AFL-CIO black list, were purged.

• The union's constitution was revised to give less power to the president and more to the Executive Board.

• The AFL-CIO ethical practices codes were endorsed, except for the one that would bar from union office those who use the Fifth Amendment for their personal protection in investigations of union corruption.

• The Credentials Committee was told to be "particularly careful" in accrediting delegates. Result: 65 were barred; 50 voluntarily withdrew; 24 failed to show. (The McClellan committee says it has evidence that over half the delegates were selected unlawfully. If this is true, then dissident members stand a good chance of having the whole election declared void under a Circuit Court of Appeals mandate that specifically directed the teamsters not to count ballots of illegally elected delegates.)

• Mr. Hoffa asked Mr. Beck to hasten appointment of a trustee for six New York "paper" locals that have been linked to labor racketeer Johnny Dio and that were cited by the AFL-CIO as evidence of union corruption.

Although to Mr. Hutcheson these appeared to be "substantial and positive steps" to correct "constitutional and questionable practices and conditions," it's doubtful that the AFL-CIO's high command will agree. Not only did the federation accuse Mr. Hoffa of a host of malpractices and abuses, but it specifically asked for the removal of all those responsible for the abuses.

• **Grim prospects**—Even Mr. Beck has conceded there's little hope the AFL-CIO will decide to keep the 1.4 million member teamster affiliate within its fold. And the autonomous-minded union, which has amassed a $38 million treasury, has quickly begun to consolidate its economic power. This among unions is now second to none, has accounted for much of the rank-and-file apathy towards the corruption charges, and has always been one of the explosive obstacles in labor's efforts to achieve some sense of unity.

With considerable foresight, the teamsters passed a new constitutional provision requiring all local unions to join one of the four powerful and effective regional conferences, which have been given the power to hasten the union's trend toward area-wide bargaining and uniform contracts—a subtle move that will facilitate the big business type of economic power Mr. Hoffa has long envisaged. At the same time, Mr. Hoffa, estimating that 10% of the unions might try to bolt from his leadership, has promised an "all out" fight against any attempt at internal disruption.

But the problems Mr. Hoffa has generated for organized labor and those he has put upon his own shoulders are only a few of his immediate headaches. Even before he tries to convince the AFL-CIO that the corruption charges were dissolved when the delegates expunged from the record the report of the Ethical Practices Committee, he has to face trial for illegal wire tapping, and possibly for perjury.

**JIMMY HOFFA** reaches his goal but for him and AFL-CIO big problems begin.

# Capitol Changes Under Fire Again

Another round in the continuing controversy over proposed changes in the U. S. Capitol was precipitated last month by submission of a comprehensive report on the Capitol to the Congressional Commission for Extension of the United States Capitol.

The report, submitted by J. George Stewart, Architect of the Capitol, calls for both immediate and long-range improvements in the building totaling $110 million. Among the more immediate proposals in the report is the recommendation that $10 million be committed for extension of the east facade of the Capitol by 32½ ft.

Extension of the east front is opposed by the American Institute of Architects. The AIA maintains that space needed in the building can be obtained by other means, and the extension would destroy the only part of the Capitol designed in the time of the founding fathers. Whereas the dome and proportions of the Capitol as viewed from the east is architecturally beautiful now, the proposed alteration would do nothing to improve and would perhaps detract from the building, AIA claims.

Mr. Stewart's report is backed by an associated committee of nationally known architects including Roscoe Dewitt and Fred L. Hardison, Dallas; Alfred Easton Poor and Albert Homer Swanke, New York City, and Jesse M. Shelton, architect, and Alan G. Stanford, engineer, Atlanta.

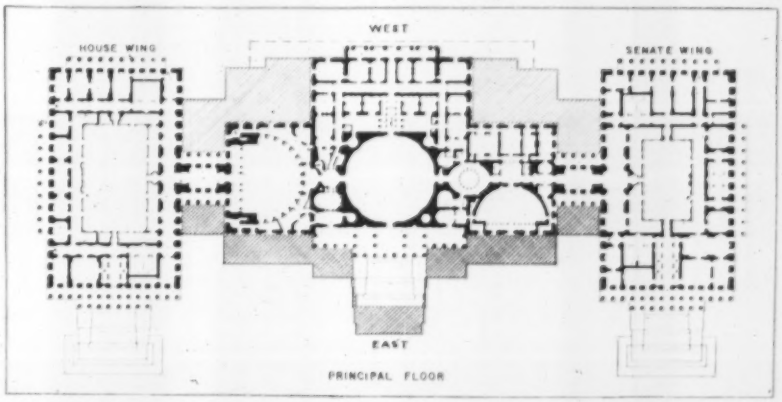
The report stresses the great need for interior space to restore efficiency to the primary function of the Capitol housing of the legislative branch of the government. The report cites the deteriorated condition of the sandstone now facing the central portions of the structure and recommends immediate replacement with marble. It is the opinion of the associated architects that the reconstruction and extension of the facade would not destroy the general aspects of the Capitol.

Extension of the west face also is recommended. The extensions would add a total of 140,000 sq ft to the interior areas of the Capitol and relieve the intolerably crowded conditions in the building. A relatively private accessway between both houses of Congress would be provided and additional office space and restaurant facilities made available to Congress.

The plan also calls for replacement of the plaza on the east side of the Capitol with a four-level underground garage and vehicular tunnels at a cost of $41 million. The plaza area then would be landscaped in a manner befitting the Capitol grounds.

**EAST FACE** of the U.S. Capitol, Washington, D. C., as it now appears. Changes proposed include 32 ft extension of central portion and removal of plaza.

**EFFECT OF EXTENSION** can be seen by comparing, in both pictures, the relative distances between peak of pediment and skirt of dome and the windows along the far wing.




**EXTENSIONS** (shaded areas) will add 140,000 sq ft to floor space in the Capitol. Additional office space and restaurant facilities will be provided to Congress.

# Cities Tackle Highway Transportation Problems

The continuing problems of urban transportation boiled over into some planning and some action in U.S. cities last week.

Los Angeles and Philadelphia have taken or are considering steps on mass transportation, while in Phoenix and Little Rock the emphasis is on private vehicular traffic.

• **Los Angeles**—The Metropolitan Transit Authority approved a $45 million bond financing agreement that will permit the authority to take over and operate two privately owned transportation systems now serving wide areas in and around the city. The plan has long been under consideration (ENR May 23, p. 28) but with the sale of bonds assured, the picture is now so well crystallized that the MTA expects to be operating the two lines by next January. The companies to be purchased are the Los Angeles Transit Lines and the Metropolitan Coach Lines, tentative purchase price for the two systems is $33 million but this figure will be adjusted to allow for depreciation and for new equipment purchased since the figure was set.

• **In Philadelphia**—The Urban Traffic and Transportation Board has submitted plans for a $75 million to $100 million mass transit improvement that will link the city with South Jersey points.

The plan was developed by the board as a financially feasible alternative to a $280 million system recommended last year by a New York City firm of consulting engineers. Among other things, the plan calls for the establishment in New Jersey of parking lots with direct mass transit connections, integration of the four main branches of the suburban railroads now feeding Camden, N. J. (just across the Delaware River from Philadelphia), extension of the Philadelphia Subway system, and direct rail connections between the Philadelphia and Camden systems by means of the Benjamin Franklin Bridge.

• **In Phoenix**—The Arizona Highway Department is studying the feasibility of covering one of the main canals of the Salt River Water Users Association to convert it into a 10 mile long, high speed crosstown freeway.

The Canal Boulevard would become a major link in the over-all city freeway system by connecting the Black Canyon Freeway with the city's northeast suburbs. Also under consideration is a plan to construct a Freeway in the bed of the Salt River just south of Phoenix as a by-pass for traffic now using U.S. Routes 60, 70 and 80, all three of which now cut through the city. Permission for this project must be obtained from Bureau of Reclamation.

• **In Little Rock**—Settlement of a lengthy controversy between Little Rock city planners and the Arkansas State Highway Department has cleared the way for construction of a new expressway, part of which involves a third bridge over the Arkansas River.

The controversy stemmed from an attempt by the State Highway Department to locate the expressway in front of a building that is to become part of the University of Arkansas and through the city's only downtown park. After prolonged objections by city officials and the Metropolitan Area Planning Commission, the department agreed to relocate the road, so final plans now can be drawn.

## Plan $350 Million Water Program for N.C.

An indication of the gigantic size of the future water development field was given at Raleigh last week. There, a vast water development program for North Carolina that would cost an estimated $350 million was proposed at the annual meeting of the North Carolina League of Municipalities.

The plan was offered by Sen. W. Kerr Scott who termed it a "blue chip investment in the state," and said it would require combined expenditures of federal, state, local and private funds.

Cited as currently "needed" projects:

• A total of $170 million in navigation, flood control and water resources projects that are "now or ought to be under study" by the Corps of Engineers.

• About $30 million for municipal sewage treatment facilities to combat stream pollution.

• Some $50 million in small watershed projects for irrigation, flood control, municipal and industrial water supplies.

• A total of $100 million in small ponds for irrigation, soil conservation and other purposes.

Senator Scott said, "These are rough figures, but they certainly give us an idea of what lies ahead if we do what we should in the way of water conservation."

As a starting point in launching a concerted state water program, he suggested that the League sponsor "water clinics" throughout the state to familiarize municipal officials with what federal programs are in operation and how to go about participating. He said he wanted to bring together "face to face" local officials and "the people in the federal agencies who administer these various water programs."

The senator, who spearheaded a $200 million rural roadbuilding program when he was governor of North Carolina, said, "What we have done in roads and schools, we must now set out to do in water."

He specifically mentioned flood control surveys of the Cape Fear and Neuse River Basins as part of the overall development program, which he has requested of Congress, and said these two surveys should be completed in the near future and that a $10 million Wilkesboro flood control reservoir on the upper Yadkin River now is in the "advanced planning" and engineering stage.

He said the state's water problems should be attacked from four basic approaches: large navigation and flood-control projects under the Corps of Engineers, small watershed projects under the Department of Agriculture, anti-stream pollution projects through the new federal sewage disposal law, and small ponds through private landowners and all levels of government.

## Montana Highway Finished After 27 Years of Work

Montana officials recently hailed the opening of State Highway No. 20, west of the Continental Divide, which signaled the end of 27 years of work and planning by a local association and the state.

The new road connects two of the state's major cities—Great Falls and Missoula—by way of Rogers Pass. It saves drivers going east or west nearly 75 miles of road. The pass, some 45 miles northwest of Helena, is the lowest of the primary mountain passes on the Montana highway system, and is kept open all year. Cars traveling over it must cross an altitude of 5,609 ft.

Satisfied with the ending of one project, the Highway 20 Committee is now pushing for a through route across north central Montana. It would run more than 700 miles across the state, following U. S. 10 from the Idaho line into Missoula, then eastward to Great Falls over the new Rogers Pass link, and pick up U. S. 87 at Great Falls, on the route eastward. At Grass Range, in central Montana, the new central route would join State Route 18, pass through th towns of Jordan and Circle, south of Ft. Peck Reservoir, and then connect with unfinished State Route 23, connecting with North Dakota.

## Wanapum Dam

### Plans being formed for $232 million project

With construction of its Priest Rapids Dam well under way, the Grant County public utility district, Ephrata, Wash., is beginning to "talk up" plans for its proposed Wanapum Dam upstream on the Columbia River.

An engineering report on the proposed project has been issued to representatives of 12 utilities in the Pacific Northwest that have contracted to buy power from Priest Rapids. Prepared by Harza Engineering Co., Chicago, the report estimates basic construction cost at $156 million, with complete project costs requiring a bond issue of $232 million.

The Harza report favors the lower of two possible sites, 18 miles upstream from Priest Rapids Dam and downstream from a highway bridge at Vantage. The plan calls for a powerhouse containing eight generating units rated at 75,000 kw each, with skeleton bays for two additional units.

The 12 utilities have options to participate in the Wanapum power on terms similar to those arranged for the $166 million Priest Rapids project. They are expected to reach decisions in about six weeks, basing their decisions on how much additional power they can use by 1962.

Cost of the power from Wanapum Dam, delivered to the utilities, is estimated at 4 mills per kwh.

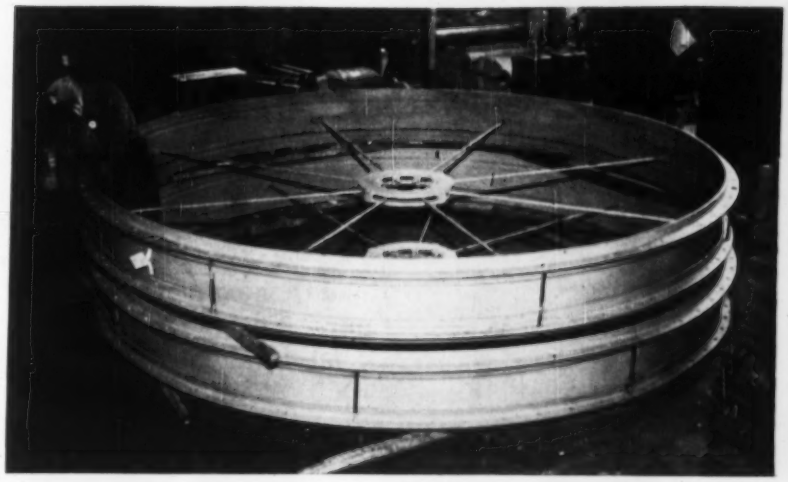
## Switch to Concrete Bridges Made by Road Department

The Colorado State Highway Department is designing prestressed concrete bridge structures to overcome delay caused by slow delivery of steel bridge girders.

A contract for a prestressed concrete bridge in the state went to Domenic Leone Construction Co. of Trinidad, Colo. The bridge is part of an 8 mile improvement project for U. S. Route 87, north of Walsenburg. The 229 ft bridge will cost $85,500, which is about the same as for a bridge with steel girders, according to the highway department.

Chief highway engineer Mark Watrous said prestressed concrete was specified because of the need to complete the project as quickly as possible. Use of steel beams would have delayed the job three months.

The department's design section now is preparing plans for 17 prestressed bridges on the same project, which is part of the interstate system. The prestressed bridges will closely resemble steel girder bridges.



## Biggest Ring Coupling Shipped

What is said to be the largest ring coupling for pipe ever built was recently shipped to Glendo Dam in Wyoming by the Dresser Manufacturing Division. Measuring 151 in. in diameter and weighing 2,370 lb, the coupling will be installed on the turbine inlet pipe at Glendo's powerhouse.

The rings were rolled from sheet steel 10 in. wide and 1 in. thick. Installer is Thompson Pipe & Steel Co. of Denver.

## Dallas Dedicates Memorial Auditorium

Formal dedication ceremonies officially have opened one of Dallas' most ambitious public-building projects, the $8 million Memorial Auditorium.

Built primarily for conventions, it includes a circular arena building, 300 ft in diameter, that can seat 11,000 persons, and a connecting theater wing with a capacity of 1,800.

The circular auditorium roof, instead of being monolithic, consists of 16 distinct wedge-shaped elements. These were cast in mutually opposing pairs on movable formwork, a procedure that resulted in considerable economy (ENR April 26, 1956, p. 44). The roof is supported by 36 concrete columns 70 ft high around the perimeter of the building. Cantilever arms at the tops of the columns extend inward 48 ft and carry the sectors of a 204 ft dia ribbed dome, ribs occurring radially along the edges and center of each element.

The project occupies a 23 acre site in the Dallas business district. It has 99,000 sq ft of floor space available for exhibit purposes. Parking fields will accommodate more than 1,000 cars.

The auditorium was designed by George L. Dahl, Dallas architect-engineer firm, and Ammann & Whitney, New York City consulting engineers. It was built by R. P. Farnsworth & Co., New Orleans contractor.

## Dam Sections Wash Out After Month of Heavy Rain

Two 500 ft sections of the earthfill part of a Florida Power Corp. hydroelectric dam on the Ochlockonee River near Tallahassee washed out Sept. 30, flooding a thinly populated area. No one was killed or injured. Damage is estimated at $75,000 to $100,000.

The concrete section of the 30-year-old dam stands 69 ft high and held 40 ft of water behind it. The dam, with a 8,800 kw capacity, is used intermittently and is one of two that the power company—headquartered at St. Petersburg—has on the river.

Heavy rainfall preceeded the dam failure; some 20 inches of rain fell in September, second highest rainfall on record. The dam had been inspected by power company inspectors only a few days before the washout and no potential trouble was noticed.

The sections will be rebuilt and the dam is expected to be back in operation in 90 to 100 days.

## BRI Studies the Use Of Plastics in Roofs

The Plastics Study Group of the Building Research Institute held a two day meeting late in September in St. Louis to observe and record actual experience to date with plastics in roof construction.

The meeting, which was held at Washington University, was attended by 309 persons, from the U.S. and Canada. It was the fourth study session sponsored by the Plastics Study Group.

Sessions held on the first day covered applications of plastics in insulation, vapor barriers, flashing, surfacing materials, skylights and roof structures. The second day was devoted to analysis of the new Inorganic Chemical Laboratory of Monsanto Chemical Co., in which extensive use had been made of plastics (ENR June 20, p. 56). The BRI plans to publish proceedings of the meeting.

## New Cross-State Highway Under Study in Arizona

In the face of considerable opposition, the Arizona Highway Department has started studies that may result in construction of a $37 million, 4 lane highway across northern Arizona, replacing U. S. 66 and bypassing every community along the present route.

The studies are being carried out jointly by the state and the U. S. Bureau of Public Roads under contract to Planning Corporation of America, an Arizona firm.

Route 66 is the lifeline of commerce for most northern Arizona towns, which rely on it for tourist business.

State Highway Engineer William Willey said that the alternative to building the new, more direct highway would be to rebuild the present one. The studies will provide the basis for decision, he said.

Estimates have not been made for the entire route from the New Mexico to California state lines, but Mr. Willey said it probably would run $100,000 per mile for the 272 miles.

## Road Department to Refund Course Costs to Employees

The Colorado Department of Highways has adopted a tuition refund plan to encourage employees in engineering positions to increase their knowledge.

The department will reimburse qualifying personnel for 50% of the cost of correspondence or classroom extension courses, after the employee completes the course with a passing grade.

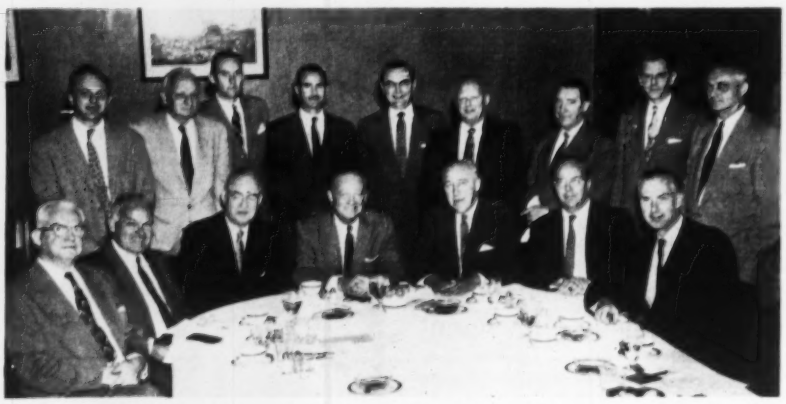
Eligible employees must be under 55 and must agree that they do not intend to retire within 10 years from the date the course is started.

## Decisions Called Peril To States' Water Rights

Two recent U. S. Supreme Court decisions may be interpreted "as overturning long-established rights of states to govern water rights," Robert Y. Thornton, Oregon State attorney-general declared at the Western Regional Conference of the Council of State Governments when it last met in Seattle.

One decision, Mr. Thornton said, gives the Federal Power Commission the right to authorize construction of hydroelectric dams on any stream that runs through or by a federal reservation. Another, he pointed out, is being interpreted to deprive states of their rights to control and regulate surface and underground waters on a federal reservation. With this last decision as precedent, he said, the Navy has defied Nevada laws by declining to pursue an application for water rights on an installation.

Mr. Thornton advocated legislation to assure state sovereignty in the water rights matter.



**JOINING FORCES** to promote better construction, members of General-Specialty contractor committee group around temporary co-chairman James S. Binder (fourth from left) and Ira H. Hardin. James D. Marshall, AGC executive director, is third from left.

## Contractors' Groups to Study Industry

Seeking to improve relations with each other and with the public, two major groups of contractors are now in the process of organizing a new joint committee to study special phases of construction and to make recommendations for improvements.

The new group—a 16-member committee to be known as the National Joint Cooperative Committee of the Associated General Contractors and the Council of Mechanical Specialty Contracting Industries—began with a preliminary meeting in Washington, D. C., Sept. 26. Temporary leaders of the meeting were Ira H. Hardin of Atlanta, vice chairman of the AGC's Building Division, and James S. Binder of Little Rock, member of the Board of Trustees of the Mechanical Industries group.

Among the problems to be tackled by the new group are: Issues created when national industrial unions force manufacturing companies to sign restrictive clauses prohibiting construction by contract; more definitive and better specifications; standardization of materials and methods; standardization of contract provisions, bidding methods, insurance coverage requirements, and standardizing contractual provisions defining lines of authority and responsibility.

# Just Out! *New, 75 f.p.m. Bruning Copyflex Model 575!*

- Makes sharp, black-line whiteprints at extra high speeds
- Exposure lamp operates at either 7,500 or 5,000 watts
- Many operator conveniences—including one-knob speed control

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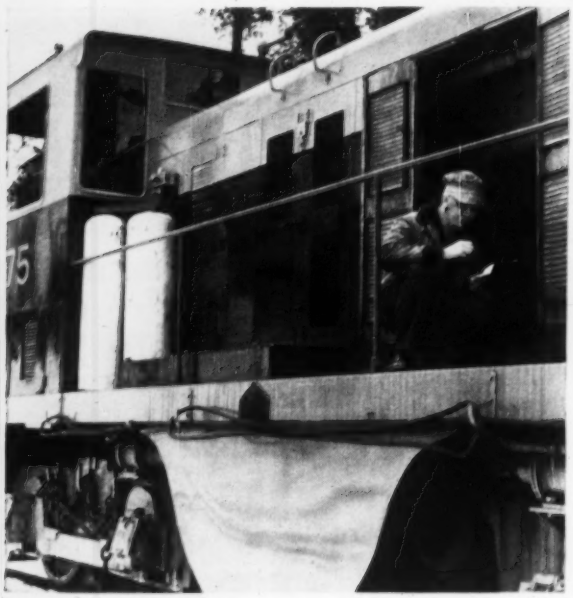
A single drop of used oil from this truck indicates true condition of the vehicle's oil . . . and tells a lot about the engine's operation.



Daily oil checks assure maximum lubrication efficiency in this diesel locomotive.

# Now—they're testing used oil in minutes

THE NEED for a fast, accurate and practical method for determining the condition of used oil has long been one of the more serious problems confronting fleet operators. It's obviously wasteful to discard still-good oil, but operating a vehicle with contaminated oil could lead to costly engine damage. This was an unsolvable condition which maintenance men had come to accept.

Since no two vehicles, even of the same make and model, are identical in performance or operation, maintenance men were compelled to compromise on oil change "averages" recommended by engine manufacturers. This procedure is uncertain and costly. Fortunately, this operating conflict has been resolved with the introduction of a simple but completely reliable oil check system . . . the Shell ADC Oilprint Analysis.

The ADC Analysis was primarily conceived to determine proper oil change intervals for individual engines. However, it goes much further. It is capable of actually reducing engine maintenance costs by disclosing certain mechanical defects *before* they have caused serious engine damage.

The test procedure is very simple . . . requires little practice to perfect . . . and provides a reliable check of oil from merely two drops of used oil. In minutes, the degree of *A*lkalinity, *D*ispersancy and *C*ontamination can be determined easily.

Here are several typical examples from various areas of the country. They show how fleet operators, employing both diesel and gasoline engines, have successfully and profitably applied the ADC program.

### A Kansas City Freight Line

Operating a large fleet of trucks, one Kansas City freight line previously had drained and replaced oil every 3,000 miles. After adopting the ADC Oilprint Analysis, individual test charts showed that, in most cases, drainage would not be necessary at less than 6,000-mile intervals. Even at this doubled interval, engine life was not affected. Further proof was established when these engines were inspected at 87,000 miles and no appreciable wear was found on bearings, pistons, rings or valves.

### An Idaho Logging Operation

Oil had previously been drained after a limited number of hours of use on an Idaho company's diesel locomo-

Substantial oil economy is realized in this tractor, because oil is changed only when indicated by the Oilprint.

Taking a quick "fingerprint" of crankcase oil from an interstate carrier.

tives. With the ADC Oilprint Analysis as a guide, the oil-change interval has now been safely increased many-fold. The savings made possible by this on-the-spot test in oil, filter change and labor costs were considerable. Furthermore, leaky head gaskets are frequently discovered before any serious engine trouble develops. Here is another valuable plus for the ADC Oilprint Analysis.

**A Washington, D.C., Transit Company**

This transit company operates a large fleet of buses with both gasoline and diesel engines in use. With the difference in operating schedules . . . rush hours, short and long hauls, around-the-clock schedules . . . both engine types were believed to require complete oil changes every 2,000 miles. When the ADC program was instituted, the tests showed that oil-drain periods and minor maintenance checks could be safely extended to every 3,000 miles for gasoline engines and 4,000 miles for diesel engines.

Fleet operators, who are concerned with extending the service of crankcase oil and avoiding the risk of using contaminated oil, are invited to sit in while a Shell service engineer demonstrates the time-and-money advantages of an ADC Oilprint Analysis program.

Photo shows an oil-spot test card . . . one phase in the visual life record of a change of oil.

One drop of a special indicator* fluid developed by Shell checks the alkaline reserve in the oil.

*Indicator Fluid U.S. Patent No. 2,770,530

**SHELL OIL COMPANY**

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SHELL

**The Providence River Bridge** is slowly shaping up as can be seen from the South Water Street access ramp to the Fox Point Interchange. This portion of the North-South Freeway is located in the heart of the industrial downtown section.

# New Interstate Highway Makes Smallest

What amounts to a gigantic road-building program (for tiny Rhode Island) will, when completed, provide links between major traffic arteries of Connecticut and Massachusetts that now end abruptly at the state lines.

When completed, the overall project—undertaken under the interstate highway program—will link the Connecticut stateline at Route 84 with the Massachusetts stateline at Seekonk to the east and North Attleboro to the north. The southernmost section—Connecticut to Nooseneck Hill Road (Route 3) in Washington County—is already finished.

In the system there are three approved interstate routes totaling 69.9 miles, the state's entire authorized interstate mileage. Of this, 22.5 mi. are classed as rural and 47.4 mi. as urban.

Under contract and in active construction, costing more than $14.5 million, is a bridge over the Providence River and the Fox Point Interchange in the heart of the industrial section of downtown Providence. This cost includes $6 million for right-of-way.

Providence is a small town and cosmopolitan city, all wrapped into one package. It is a merchandise mart for some 1.25 million people and a hustling industrial city. It has been fighting a traffic headache for years, and now hopes that the State Highway Department's efforts to build a North-South Freeway through the heart of the city will remove the pain.

• **Complex interchange**—The rather complex Fox Point Interchange starts at the east bank of the Providence River on South Water Street and extends into the George M. Cohan Memorial Boulevard at Brook Street. Access ramps link the interchange with South Water Street, South Main Street, the Point Street Bridge and with Wickenden Street.

The interchange is covered by contract No. 2, amounting to some $2.4 million while the ramps and access roads come under two separate contracts, No. 3 and No. 4, totaling $3.9 million.

Into the Fox Point Interchange was placed 13,972 cu yd of structural concrete with approximately 13,700 lb of reinforcement bars. Some 39,179 sq ft of stone facing cover the walls and abutments that stand on 79,058 lin ft of 12 in. dia steel foundation piles filled with concrete. Nearly 1,285,156 lb of structural steel went into the interchange.

The ramps and approaches took another 8,697,899 lb of structural steel, 16,389 cu yd of reinforced concrete and 17,673 sq ft of masonry stone facing made up of granite. More than 89,178 lin ft of 12 in. dia steel piles filled in place with concrete made up the foundation supports.

• **River crossing**—The Providence River

**Surveyors** are setting up grade on the forms in preparation for concrete placing.

**Substructure work** progresses along the south side waterfront, where retaining walls and stabilized banks will support the Dyer Street bridge ramp for off traffic.

# State Smaller

Bridge starts west of the river bank at Dyer Street, spans the river and adjoins the Fox Point Interchange at South Water Street. Ramps and accesses to the bridge start as far back as Plain Street and Beacon Avenue, at Haywood Park to the waterfront and South Water Street.

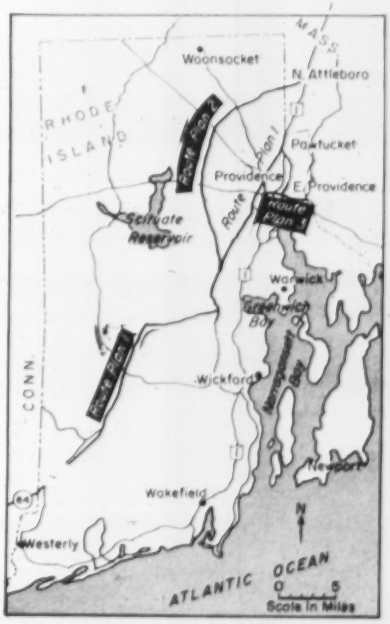
The unusually wide bridge designed to accommodate the heavy downtown and through traffic carries two 54 ft wide roadways divided by a four foot median island. It is being built by the M. A. Gammino Construction Company, Providence, for a bid price of $2.2 million (Contract No. 1).

It is a deck type steel beam bridge with 36 in. stringers varying from 194 lb to 280 lb sections. Seven spans make up the overwater portion of the bridge, the first being 68 ft and the other six each 76 ft in length. The east abutment wall is not parallel to the first column pier line, but lays at a skew of approximately 30 deg. In addition, part of the bridge's west end is on a horizontal curve.

Over the steel stringers, a reinforced concrete slab with a minimum thickness of 8 in. represents the pavement base. On top of this layer of concrete, a 3 in. thick asphaltic wearing course constitutes the road surface. On both sides of the bridge there are 2½-ft-wide safety walks. All curbing is of granite and all retaining walls, abutments and river piers are faced with 4 in. and 6 in. granite.

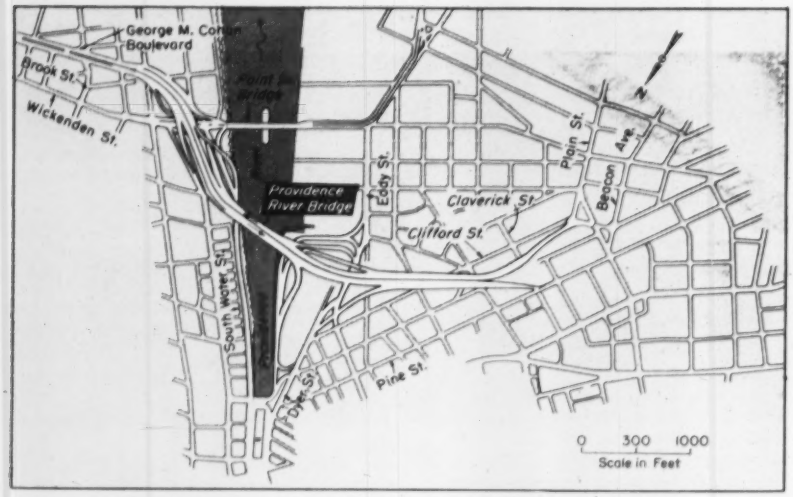
For the bridge substructure some 65,000 lin ft timber piles and about 23,900 lin ft of 89 lb steel H-section piles were used. Facing for river piers was made up of 34,000 sq ft of granite. In addition some 12,149 cu yd of structural concrete was used as well as 8,484 cu yd of tremie seal concrete.

• **Three routes**—There are three approved plans of the interstate route. The first route will be from the Con-




**Location** three approved routes for the interstate system.

## . . . Bridge and Interchange speeds downtown traffic




**Sketch** shows general plan of the Providence River Bridge from Plain St. to span the river and link into the Fox Point Interchange which extends into Cohan Boulevard.

Hopkinton line (Route 84) to the Massachusetts-Pawtucket line for a total of 42.2 miles. The second route will start at the Post Road south of Providence, proceed west, then north and east to the Massachusetts-Cumberland line. This is a 23.5 mile circumferential highway—a road aligned on practically the same right-of-way that had been planned under the state's 4 year highway construction program of 1955. A 4.2 mile easterly link from the Interstate Route 1 in Providence to the Massachusetts-East Providence Line makes up the third route.

In general the North-South Freeway roadway cross-section is made up of both concrete and asphalt. A 9 in. gravel foundation is placed and rolled in cut sections. In fill areas, 12 in. of gravel is used. The stabilized gravel is covered with 8 in. of concrete which serves as a base for the 3 in. asphalt topping. Granite curbs are used throughout, with steel beam guard rails along the fill areas for the motorist's safety.

The lanes vary in number and in width in sizes of 12 ft, 15 ft, 18 ft and 22 ft. Shoulders average 10 ft. The two roadways are, however, divided throughout the freeway length by a 4 ft median strip made up of an 8 in. layer of gravel topped with a 4 in. thick concrete pavement. All retaining walls are of reinforced concrete, covered with 4 in. and 6 in. granite facing blocks to match the existing structures.

Lighting will be installed throughout the section of the freeway within the city, and on all ramps, bridge approaches and the bridge itself. Banks at cuts and fills will be sloped 2 on 1, covered with 4 in. of loam and seeded for stabilization.

• **Land acquisition**—The acquiring of right-of-way has proceeded with practically no delays. The right-of-way section, working in conjunction with the state's properties committee (which is composed of the attorney general, director of administration, and the purchasing agent) has appraised and negotiated settlements for nine road projects during 1956.

For the freeways, a newly created freeway acquisition unit has negotiated settlements on two freeway projects: the North-South Freeway and the Louisquisset Pike Freeway—a Providence-Woonsocket artery.

In conjunction with the above projects, the right-of-way section with the cooperation of the freeway acquisition unit, obtained signatures on 510 releases, made 12 conveyances, obtained 9 drainage agreements, appraised 910 parcels of land, made 3,810 interviews and obtained addresses and tax assessments for 1,060 properties.

• **Work to come**—Bids will be asked probably next spring for work to come other than the three interstate highway system routes. This will cover the construction of a $7.3 million expressway as the newest link connecting Providence with Worcester, Massachusetts.

To be known as the North Smithfield Expressway, the road will be six miles long and have two 24 ft wide roadways separated by a 24 ft center strip. On the outside of each roadway there will be a 12 ft strip for disabled cars, and 3 ft inner shoulders. Three underpasses and four overpasses are included in the plan for uninterrupted and safe travel.

Land acquisition costs have been estimated at an unusually low figure of $200,000 because the highway will traverse undeveloped areas. Damage costs are put at $300,000, relocation of utilities at $300,000 and actual construction at $6 million.

The highway will serve an area containing four of the state's seven major cities and 57% of the population.

Rhode Island will receive $17.3 million from federal highway construction aid funds in the fiscal year beginning July 1, 1958. This is about $2 million more than the state is getting for the present year. The state will contribute about $6 million bringing the total funds available to exceed $23 million.

The highway work is being done under the supervision of George H. Henderson, principal highway engineer for the Rhode Island Department of Highways and Joseph M. Vallone, director of public works.

**The horizontally curved steel** beam deck bridge with 36 in. stringers, seven spans and skewed 30 deg, will have a 3 in. asphalt pavement over an 8 in. concrete base.

THE BUFFALO-SPRINGFIELD K-45 KOMPACTOR

# How to select compaction equipment

The logical question to ask yourself when you are ready to buy new compaction equipment is: "Exactly what do I need the equipment for and how will I use it?"

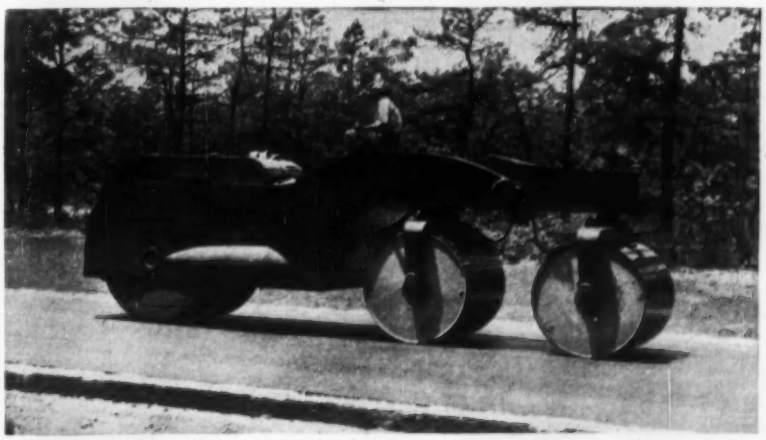
**BASE FILL COMPACTION**—This type of compaction demands equipment that will handle a wide variety of materials, give you the highest degree of compaction with the fewest passes. Buffalo-Springfield's revolutionary K-45 Kompactor is proving a real money-making answer for this type of work. It is self-propelled, relies on the "Interrupted Pressure Principle." All compaction effort is directed downward. Contractors testify they are meeting density requirements in one-fourth the time normally required with other compaction equipment.

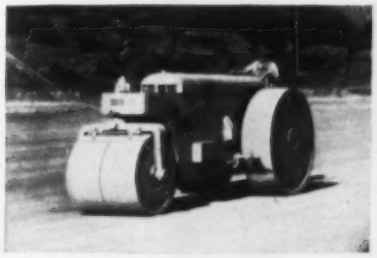
**FINE GRADE FINISHING** — Buffalo-Springfield offers six 3-wheel rollers, ranging in capacity from 5 to 15 tons, to handle the large variety of materials found in fills, subgrades and unfinished bituminous pavements. The variable-weight 3-wheel roller is ruggedly built for years and years of hard, maintenance-free work.

Buffalo-Springfield's thoroughly-proved 3-axle tandem "walking beam" roller provides up to 60% greater tonnage compacted per day in superhighway construction, airport and military establishment jobs where specifications are extra strict.

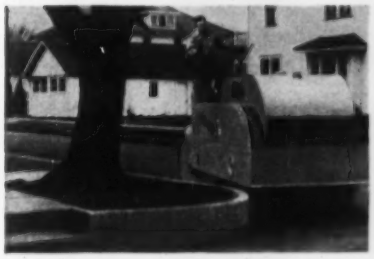
**ASPHALT FINISHING** — Two-axle Tandem Rollers are designed especially for all surface finishing jobs. Ranging from 5 to 16 tons, Buffalo-Springfield Tandems are used for heavy-duty highway and public works projects, and all types of finishing, maintenance and repair work. A wide selection of models for the biggest to the smallest jobs are designed for long-life and profitable operation.

THE BUFFALO-SPRINGFIELD KX-3 AXLE TANDEM





3-WHEEL ROLLERS



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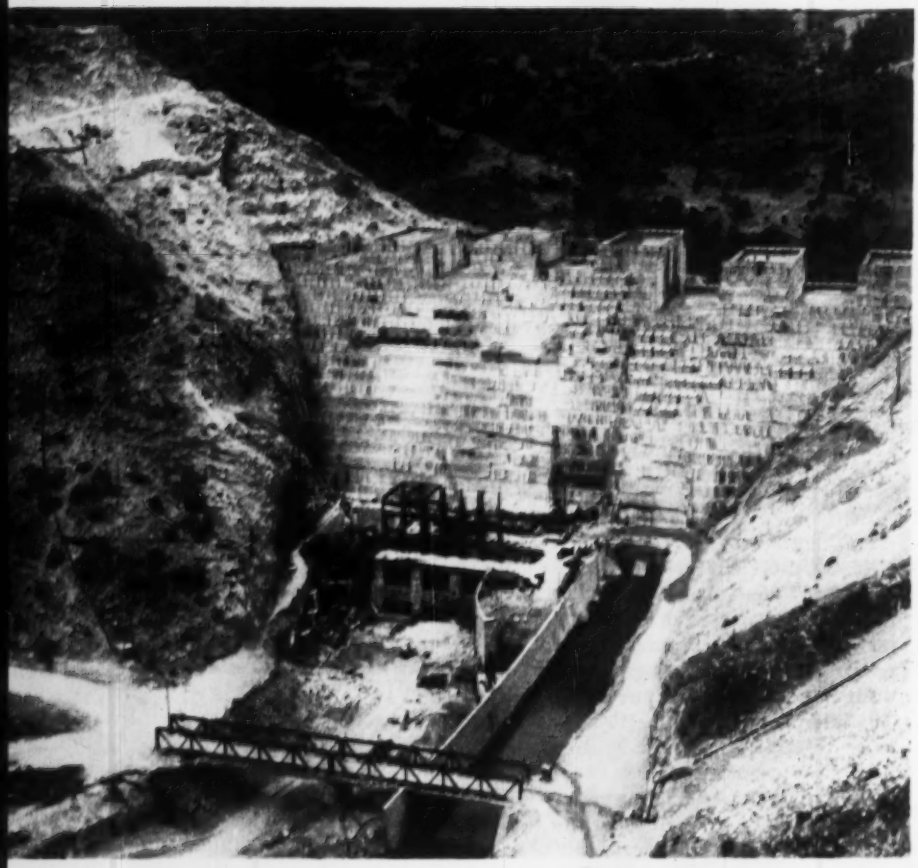
**Dambuilding comes first, at whatever cost, as country applies its energies to all kinds of construction**

# Hydro Paces

Waldo G. Bowman, Editor
Engineering News-Record



**KEMER DAM,** 360 ft high, has stepped downstream face formed by precast concrete panels. Galleries and openings in concrete dam are also formed by precast elements.

Turkey, our best and most dependable friend in the Middle East, is in a hurry.

Destination: a position high enough on the world's economic ladder to match the western outlook and habits it has acquired in the quarter century since Kemal Ataturk wrenched it away from its medieval heritage of lethargy.

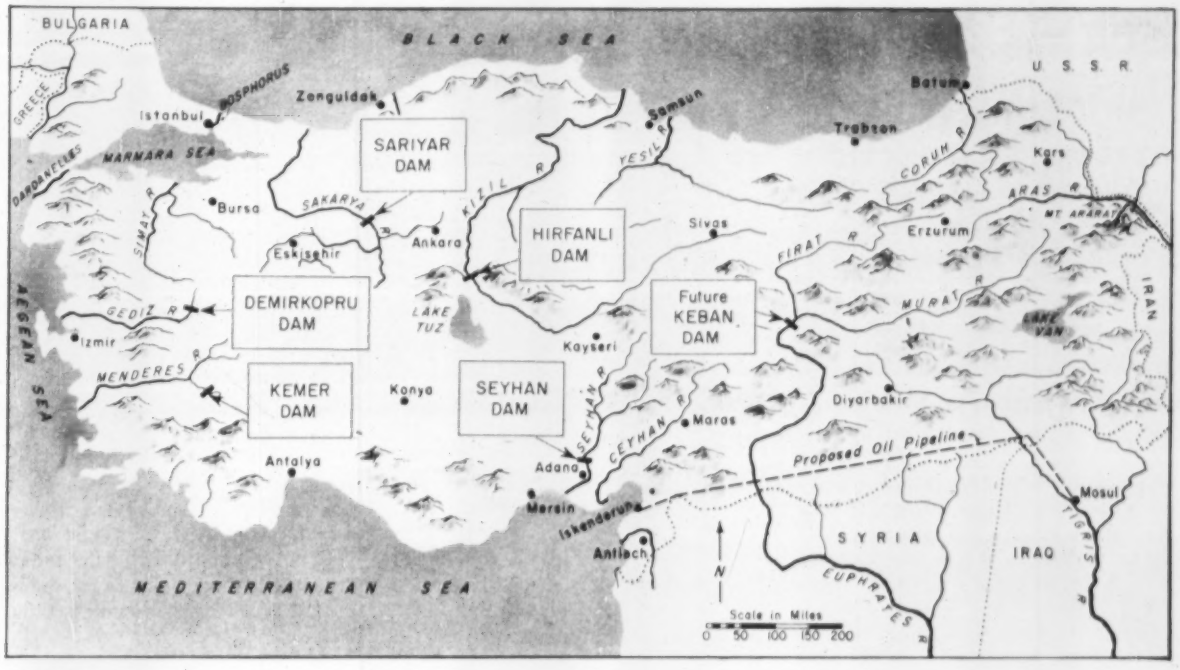
Vehicle: construction.

Motive power: U. S. aid dollars and all the foreign credit it can muster by borrowing.

Sensing the trading value of its age-long opposition to Russian expansion and its strategic importance as the link between NATO nations of the West and the Baghdad Pact nations of the Middle East, Turkey has bargained relentlessly for the maximum in economic grants, loans and military aid. As a consequence, and because we recognized a bargain in security aid, Turkey has received some $1.5 billion from the United States in the past decade. Moreover, it has not hesitated to mortgage its future by borrowing, paying excessively for the privilege if necessary.

All this emphasizes the fact the "Terrible Turk" of yesterday has become the "Impatient Turk" of today, even to embracing the kind of impatience that will accept national bankruptcy, if that be necessary. Such an

# Turkey's Construction Boom




**FIVE DAMS** are completed or under construction. Demirkopru is the earthfill dam being built on deposits of basaltic lava.

unorthodox viewpoint has, of course, caused raised eyebrows in financial circles abroad and some grumbling at home. Yet the important point is that the Turkish political leaders are willing to impose the necessary personal hardships on the people, and that the great majority of Turks are willing to bear them and work the harder for a better future.

Individuals the world over have time and again surmounted crushing burdens of debt by sacrifice and hard work. It is the Turkish philosophy that a nation can do likewise, and no one visiting Turkey today can fail to feel that this industrious and forward-looking country has at least a fair chance of success.

Turkey is a rich country—in agricultural products, in fish, in minerals and perhaps in oil. What Turkey has decided it needs most to supplement these assets is more power for industry and for the exploitation of its mineral wealth. And being endowed with a high potential of hydro power, dam-building is receiving first priority.

It has just been my privilege to see the results in a week-long trip to the damsites.



**HIRFANLI DAM** will be 270 ft high rockfill which will utilize spoil from 2.5 million cu yd spillway cut. Note sluicing of this select material on downstream face at right.

Two dams, Seyhan and Sariyar, completed last year, will produce 680 million kwh annually between them. Three others, still under construction—Hirfanli, Demirkopru and Kemer—will add 736 million kwh a year. Several other large dams are projected, but the significant point is that the 1,416 million kwh of just these first five dams, which will all be available by the end of 1959, will almost double the country's present power supply, both hydro and thermal. Moreover, they will increase hydro power ten times since the nation's dependence heretofore has been on steam.

But Turkish impatience does not end with its application to power needs. Highways are being improved throughout all of Anatolia (the part of Turkey in Asia), and wide streets are being cut through, around and over Istanbul on the European side. This city has added a new water supply dam, Elmali, a round-head buttress type, 135 ft high, on the Asiatic side, to supplement the water now supplied from the century old dams in Belgrade Forest, up near the Black Sea on the European side.

Rural highway building is providing well graded and drained roadbeds with gravel surfaces, which are destined to receive asphaltic surfaces as soon as it is deemed that foreign exchange can be safely diverted from other programs to import the materials.

Bridge building has not yet been noticeably active, and no large highway structures are in the present program. Nevertheless, if the so-called Baghdad Pact Highway—from Istanbul to Ankara, and on across central Turkey to Teheran in Iran, and then to Karachi in Pakistan—should be undertaken (and military communication considerations may raise it to sufficient priority) a number of large structures would be required. Then, too, there is always the talk of bridging the Bosporus at its narrowest point (2,300 ft) near the twin medieval towers which dominate its shores in the north part of Istanbul. Indeed, this project seems to invoke such a favorable reaction, whenever it is mentioned, that it would be surprising if this intercontinental connection were not started within a very few years.

A relatively large amount of building construction also is under way in the cities, with slums being cleared for apartments and public buildings in Istanbul, and for both of these as well as hotels in the fast growing capital city of Ankara. Port and harbor construction has been active for some years, with major accomplishments already recorded at Zonguldak and Samsun on the Black Sea and with projects under way at Istanbul and Izmir, the principal centers of Mediterranean trade.

Overall, therefore, Turkey has a well-

**NEW CITY HALL** in Istanbul is going up, while many old buildings are being torn down to open up the city.

**WIDE HIGHWAYS** are being cut through Istanbul to penetrate a labyrinth. Secondary objective is access to great mosques.

rounded development program under way strictly focused on the need to raise its living standards and economic well-being. Apartment construction will provide better living conditions. New office buildings will increase business efficiency. Hotels will attract tourists, as will better highways, and the tourist trade is one of Turkey's best hopes for earning enough foreign exchange to reverse its present excess of imports over exports.

Improved methods of mining coal, lignite, copper and chrome are being supplemented by the port developments for moving and loading these materials. Grain silos, appearing all over the country, improve agriculture by giving the farmer a place to store his wheat awaiting a market.

And as the dams increase power supplies, local industry can make more of the machinery and other products that must now be imported. These are the principal objectives and manifestations of Turkey's mood of impatience with things as they are. And of all of them, the greatest present emphasis is being placed on more power for industry.

## Turkey's Dams

Indicative of the country's desire to progress swiftly is the procedure chosen to get its dams completed. Unlike the situation in some countries, where the emphasis in dambuilding is to use foreign engineers and contractors to train local personnel, even though this may slow down the project, Turkey has engaged foreign experts to see that the dams are completed as rapidly as possible. Thus, all of the five dams in the present program (see map) have been designed, and their construction is being supervised by U. S. consulting firms—four by Tippetts, Abbett, McCarthy, Stratton of New York, and one, Sariyar, by Charles T. Main, Inc., of Boston.

As to contractors, the U. S. firm of Morrison-Knudsen, in combination with a French and a Turkish contractor, built Seyhan. Sariyar was constructed by a combine of three German firms, with Thompson-Starrett of New York supplying the overall technical planning. Two British firms, George Wimpey & Co., Ltd. and the English Electric Co., have the contract for Hirfanli Dam. And a French contractor, Compagnie Entreprises Francais, in combination with a Turkish contractor, is building both Demirkopru and Kemer. All of these foreign firms have been given the fullest freedom possible to carry out their tasks just as they would in their home countries.

All of the Turkish dams can be characterized as major structures, although only two can be said to have unusual features: Demirkopru is an earth dam founded on a basalt formation originating as a lava flow from a nearby volcano, extinct for some thousands of years; Kemer is a concrete gravity dam in which precast elements are used exclusively for all formwork. Each of the five dams, however, is worthy of brief description.

• **Seyhan Dam**—Located in south Turkey, 30 miles inland from the Mediterranean Sea on the Seyhan River and about 5 miles upstream from Adana, Seyhan Dam is a rolled fill of 10 million cu yd. Built with an inclined clay core, it is 175 ft high and 6,450 ft long. The foundation is a conglomerate, which had to be exposed by removal of about 6 million cu yd of alluvium. The spillway, cut through the right abutment, provided a considerable volume of fill for the dam. Actually there are two spillways, one of 90,000 cfs capacity at El 2,013, and the other of 252,000 cfs at El 2,227. The smaller spillway is equipped with gates for controlled operation. The larger spillway is only for emergency use in exceptional floods.

One of principal purposes of Seyhan Dam is flood control, to protect the considerable agricultural and industrial development below it. But irrigation and power are also in the picture. The power plant, just below the dam, contains three 25,000 hp Francis type turbines connected to three 22,500 kw generators. The 26 ft dia, 1,930 ft diversion tunnel, used during the construction of the dam, is now utilized as both the power tunnel and the irrigation water outlet.

The bulk of the financing for the $32 million project, which was put into operation in April, 1956, was provided by a $25 million World Bank loan.

• **Sariyar Dam**—The other completed hydro project in Turkey's program, which started power generation in November, 1956, is Sariyar Dam on the Sakarya River in the northwest quarter of the country, 100 miles west of Ankara. This is the region of greatest potential industrial power demand, which the 300 mile Sakarya, with five good damsites and 1,500 ft of head, is scheduled to meet.

Sariyar is the middle dam of the five that are possible, and is a concrete gravity structure 356 ft high. Its central overflow spillaw of 270,000 cfs capacity is equipped with gates. The dam has been designed for full earthquake effect both normal and transverse to the axis. Constructed by cableway as a series of 19 monoliths, the dam has an unusually fine surface appearance.

(*Continued on page 38*)

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## . . . 250 ft high earthfill dam on porous basalt spans gneiss walled valley

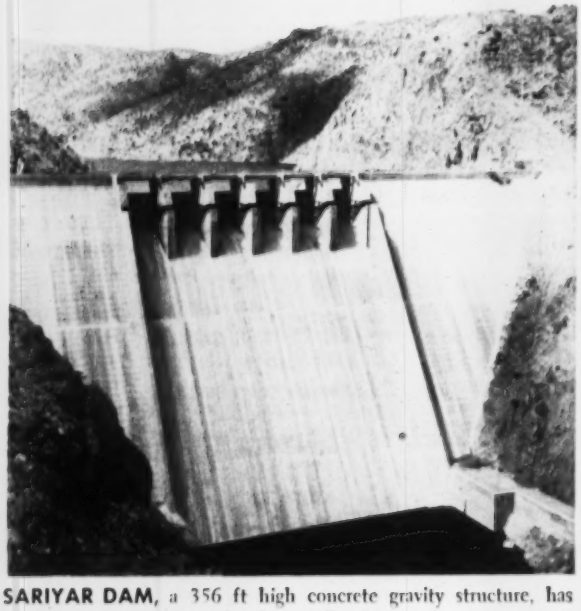
**DEMIRKOPRU DAM** along axis with upstream to right. Black, spongy mass in foreground is the basalt. Black line up embankment is a drain of basaltic material.

**POWER TUNNEL** emerges into open cut in basalt. Basalt is extremely abrasive.

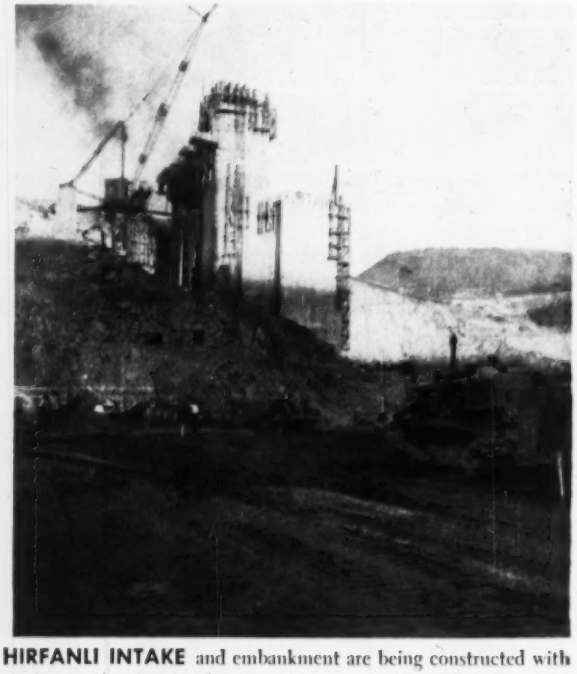
This was no mean trick, with the rough form lumber that it was necessary to use. Turkey's lumber is scarce and poor, and use of steel forms is out of the question since they would have to be purchased with foreign exchange.

The dam and the power plant at Sariyar are located at the opposite ends on a long U-loop in the river, and are connected by a 3,300 ft power tunnel 25 ft in diameter. This tunnel is almost directly over the 23 ft diameter diversion tunnel, which as originally planned was scheduled for later use as the power tunnel. Bad rock and a serious cave-in, however, caused this plan to be abandoned, and the second tunnel was driven. The intake for the power tunnel, located in the reservoir about 1,500 ft above the dam, is 231 ft high; extreme care in design and unusually heavy reinforcing were used to make it safe against earthquake damage.

Emerging high on the mountainside above the power plant, where an 11 million gallon surge tank is located, the power tunnel feeds four 15 ft dia penstocks leading to the turbines. Two 40,000 kw generators are installed and



**SARIYAR DAM,** a 356 ft high concrete gravity structure, has been completed. Dam has unusually fine surface appearance.



**HIRFANLI INTAKE** and embankment are being constructed with equipment bearing familiar American names but of British origin.

operating at present, and the two others will be added in the near future.

The $90 million Sariyar project was aided with a $30 million grant from the U. S. International Cooperation Administration and was further financed by Turkey's Etibank, the government agency originally set up to finance and develop the country's mining industry, and now additionally charged with the same functions for all big regional power developments.

• **Hirfanli Dam**—About the same distance from Ankara as Sariyar, but south instead of west, is another of Turkey's key hydro projects under construction—also destined to serve the industrial northwest region. This is Hirfanli, a 270 ft high rockfill dam with a volume of 2.6 million cu yd. Located on the Kizilirmak (Red River), it, like Sariyar, is one of a series of planned dams (nine in this case) in a program to utilize the entire head of one of Turkey's major streams. The average annual discharge of the river at the damsite is 2 million acre-ft, and the largest flood in the past 15 years has discharged 38,000 cfs.

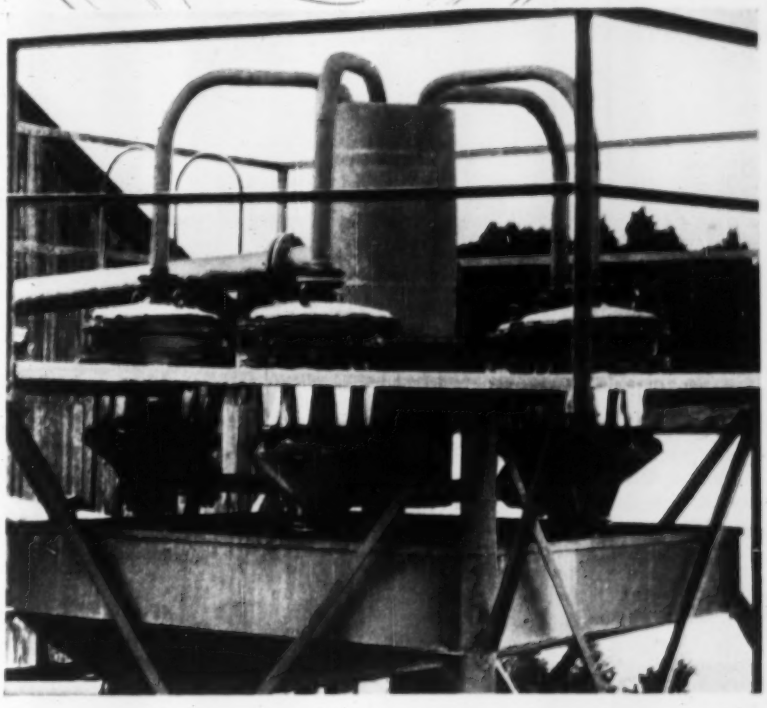
Hirfanli Dam is being built in a steep-sided gorge, and rests on good quality rock, structurally able to carry a concrete dam. The rockfill, however, was determined to be the more economical because of the availability of material from the spillway cut, plus the difficulty and cost of securing cement for a concrete structure. This spillway cut, 330 ft wide and 1,650 ft long, will require a total of 2.5 million cu yd of rock excavation.

One of the problems at Hirfanli has been to coordinate embankment placement with spillway work since the excavated material varies in quality and in the sizes obtained in blasting. Some stockpiling has had to be done, but, in general, embankment operations have been shifted to suit the material as it comes from the cut. Of the dam volume, 10% is impervious fill, 50% semipervious, 35% rockfill and 5% is filter material. The latter is being obtained from a clay deposit about 1½ miles upstream from the dam.

For the heavy excavation 3 cu yd Lima shovels are being used, while Euclid trucks are the hauling units. Although these are familiar American names, the units are manufactured in Great Britain. On the dam itself, all equipment—sheepsfoot rollers, rubber-tired compactors and the like—with the exception of Caterpillar bulldozer-equipped tractors, are of British origin.

During construction the river is being carried around the dam in two 22 ft dia tunnels about 1,700 ft long, and with a capacity of 25,000 cfs. These tunnels will be used as power and dis-


*The beginning of Fine China...*



Bavarian china has long been known for its excellence of craftsmanship, design and quality . . . and practically every woman's dream is to someday possess this fine china.

The beginning of this exceptional china is superior kaolin, such as produced at Dorfner, Bavaria, near Nuremberg.

In the production of kaolin, a fine white clay, as well as different fillers used in the manufacture of porcelain china, Dorfner uses four batteries of P-50 DorrClone units. Each of these batteries contains eight 2-inch diameter P-50 porcelain DorrClone units, which make a separation at approximately 15 microns at a feed pressure of 25 psi. The present plant capacity is 100 cubic meters per hour or 440 gpm. The DorrClone units were supplied by D-O's Associate Company in Wiesbaden, Dorr-Oliver G.m.b.H.

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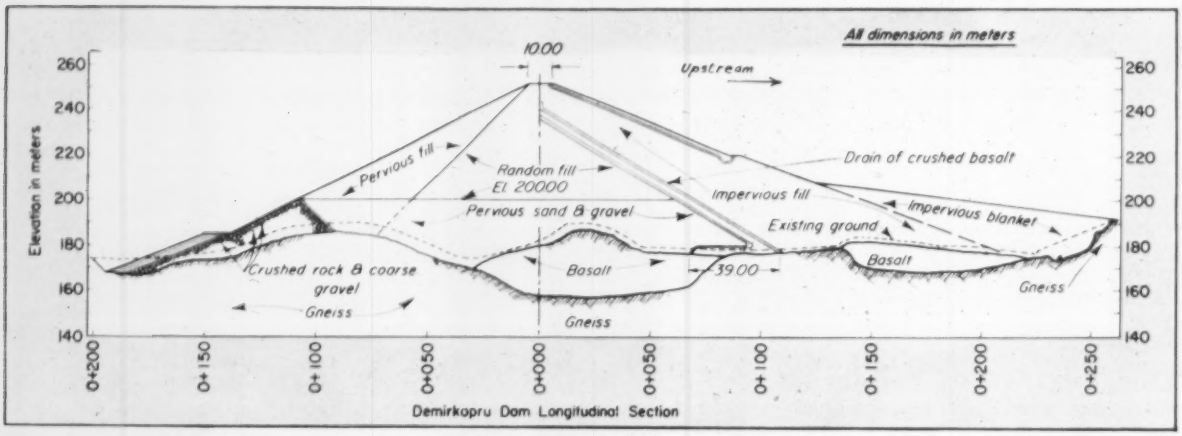
## . . . Danger of leakage was most difficult problem with Demirkopru's porous basalt




**DESIGN** carried additional 65 ft thick impervious blanket upstream to make contact with tight layer of blue clay.

charge tunnels after completion of the dam. As compared to the tunnel discharge capacity ,the spillway is designed to pass 90,000 cfs.

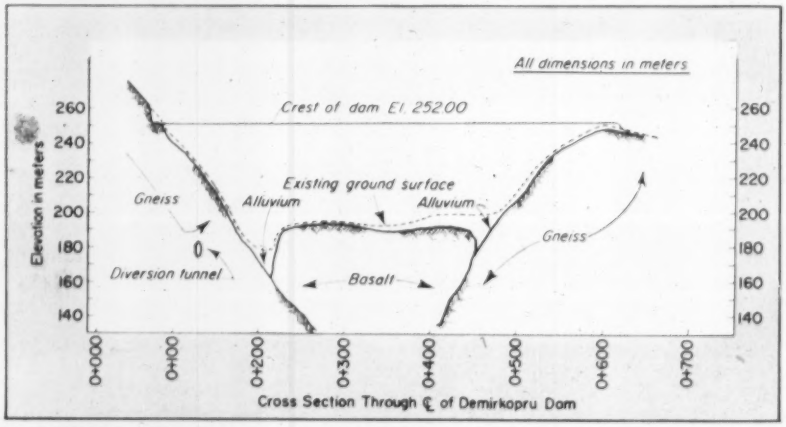
The power plant at Hirfanli is located just downstream from the dam, and will contain four 44,000 hp Francis turbines of which three will be installed initially. Each will be connected to a 40,000 kva generator.

An interesting aspect of the Hirfanli project is that it is being financed by the British contractors, George Wimpey & Co., Ltd. and the English Electric Co., under an arrangement whereby they are paid in bonds, which will be retired by the Turkish government according to a stipulated schedule. But, in addition, the British government has guaranteed that the contractors will receive no less than 90% of the face value of the bonds.

• **Kemer Dam**—The other two dams under construction in Turkey are in the southwest part of the country in the vicinity of Izmir, the country's second largest port and the center of its richest agricultural area. They, therefore, have important irrigation and flood control functions in addition to power generation.

Kemer Dam on the Menderes River will be a concrete gravity structure and the highest dam in Turkey, rising to a height of 360 ft. Containing a volume of 930,000 cu yd of concrete, its principal construction feature is the use of precast concrete elements for all the necessary formwork. In fact, 8% of the entire volume of the dam is precast.

All elements are manufactured in a plant on the job. For galleries, elevator shafts and the like, they are hollow boxes. There are special shaped elements for gate openings, and the facing forms are 10 ft square panels cast with a projecting dowel in the




**LAVA FLOWS** blocked damsite gorge to depth of about 300 ft leaving cavernous basalt.

center of the back face, which anchors them to the concrete in the dam. The downstream face of the dam is stepped, the riser being the 10 ft high facing panel and the tread a flat panel 7 ft 9 in. from front to back. The doweled panels are also used on the longitudinal faces of the monoliths into which the dam is divided.

Experience on the dam is universally favorable to the precast box elements used for galleries, etc., but some difficulty has been experienced in vibrating the concrete in under the dowels of the facing panels, which are set on small concrete posts to hold them in position until the concrete is placed. As a consequence, considerable grouting of these areas has been required. The precast elements also require 7½ bags of cement per cubic meter of concrete compared to 3½ in the dam's body.

The use of these precast forms follows closely the precedent set with them on Bort Dam on the Dordogne River in France five years ago by the same contractor. In fact the entire construction plant used at Bort—precasting factory, cableways and aggregating processing and concrete mixing plant—is in use at Kemer, and has been purchased by the Turkish government as a part of the contract price. Bort Dam construction was described in detail these articles (ENR Apr. 5, 1951, p. 32; May 10, 1951, p. 28).

Using three cableways, one for the handling of precast elements exclusively, the contractor is placing an average of 4,000 cu yd of concrete a day. Cement is hauled in by truck in bags, and all aggregate is made from river gravel run through the washing plant. Since the bank run gravel is deficient in fines, sand is being made in a rod mill.

Kemer Dam has an important flood protection function, since the fertile valley downstream, where cotton, fruit and vegetables are grown, is subject to annual flooding. Also, low summer flows restrict irrigation to about 6,000 acres. The dam will permit this to be increased to 39,000 acres. The Menderes River is a winding stream—in fact,

### Build 2-mile dike for irrigation canal

On St. Mary's River Project, near Cardston, Alberta, Ludwig Construction Co. Ltd., Calgary, built a 2-mile earth-fill dike as one side of a much-needed irrigation canal. Three fast-loading "C" Fullpaks were rented from George Ludwig Limited. Push-loaded, these low, wide rigs heaped estimated 15 yards of wet clay and rock from a hillside cut, in average 50 seconds, over a distance of 100-125 feet. Dirt was hauled down steep 24% grade . . . then up 5% slope. The return route included a 1000′ climb up a 16½% grade.

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#### Most power used for cutting

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#### Live "boil" adds to heap

Dirt slides in easily to fill corners, "boils" up with thrust of incoming material. Curved plate on top of tailgate rolls material forward to heap *high and wide*.

#### Easy loading in tough conditions

6′1″ high apron-lift permits fast loading and unloading of chunky materials. Quick-release clutch on hoist motor lets your operator rapidly "pump" bowl up and down . . . helps get big loads in loose material. Streamlined bowl construction makes it easy to load next to vertical banks and around obstructions.

#### Good visibility speeds operation

Low yoke gives operator better visibility. He can easily see when pusher is lined-up . . . can apply full power immediately. It's easy to control blade and apron for fast loading.

#### Unloads all material fast

Positive-ejection tailgate pushes straight forward, cleans out even the stickiest muck. Bowl empties completely, so next load is a *full* payload. Material clears easily thru 6′1″ high, 9′6″ wide opening. Rig spreads dirt fast, in accurate lifts.

#### Extra-cycle . . . more profit

Each rough-trip, Fullpak saves time in the cut, more time on the fill. It completes more cycles — with bigger loads — than other comparable self-propelled scrapers. This added production is *all profit*, because "C" Fullpak costs you no more . . . yet gives lower per-yard operating costs.

#### See for yourself

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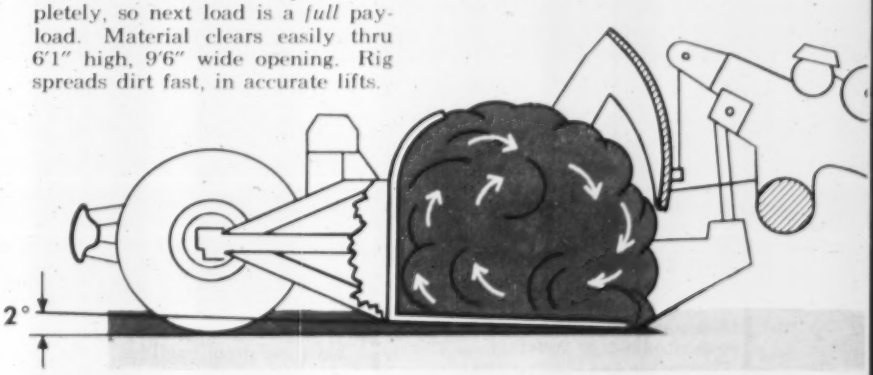


Wheels trailing in scraper's cut, Fullpak bowl hugs ground. Dirt enters almost horizontally . . . rolls back easily to fill corners. Curved top on tailgate keeps load "boiling" to heap *high and wide*. Low push-block gives straight-line low-angle push to blade. *Trademark CP-1241-A-b

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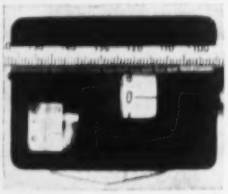

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## . . . Bridge proposed for strait dividing Europe and Asia

**LIKELY BRIDGE SITE** across Bosporous is overlooked by twin towers on Istanbul's European side (upper in photo). The strait is 2,300 ft wide at this narrowest point.

it is said to have been the origin of the word "meander"—which has left a wide bed of gravel deposits from floods. Diversion weirs to be placed at suitable points along the curves to turn the water into the irrigation ditches will therefore, have to be of considerable length at times.

The power plant, located directly in front of the dam, will contain three 22,000 hp Francis turbines connected to 20,000 kva generators.

As in the case of Hirfanli Dam, Kemer is being financed by the contractor, backed by his government, in this case France. Thus he is paid in serial bonds by the Turkish government, and protected against loss up to 80% of the face value of the bonds by the French government.

• **Demirkopru Dam**—Since Demirkopru Dam is being built by the same contractor as Kemer it is financed in the same manner. But at that point all resemblance ends because Demirkopru is an unusual, and probably unique, example of a 250 ft earth dam built over a formation of basalt. Nor does one need to be a geologist to identify either the formation or its origin. The black, spongy mass of lava slithers down the valley like a huge snake while in the background stands the mother of the monster, the perfectly truncated cone of a volcano. The upheaval may have occurred a million years ago, but the scene that remains is still awesome.

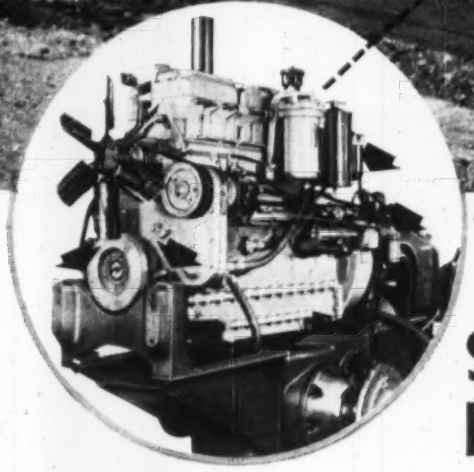
The site of the dam is in a gneiss walled valley on the Gediz River 110 miles above its mouth at the Mediterranean port of Izmir. At least two lava flows invaded this valley, blocking the damsite gorge to a depth of perhaps 300 ft. The rapid cooling of each flow, as it came in contact with the gneiss at the bottom and the air at the top, resulted in irregular, cavernous layers along these planes. The river then proceeded to carve a channel along the line of least resistance, and subsequently brought in sediment to fill up the bottom. At the actual location of the dam, the basalt is exposed under the main body of the structure, but slightly upstream it is covered with a tight layer of blue clay.

Faced with the fact that the gorge was the ideal location for a dam and assured by careful studies that the basalt was structurally strong enough to support one, the Tippetts, Abbett, McCarthy, Stratton consulting firm resolved to develop a design that would overcome the danger of leakage through the porous and possibly cavernous basalt. As shown in the accompanying drawing, the impervious fill section is founded as far as possible on an exposed area of gneiss and then when the basalt could no longer be avoided, the impervious fill was supplemented by an additional impervious blanket 65 ft thick. This blanket was carried far enough upstream to make contact with the tight layer of blue clay mentioned above.

The central section of the dam, of random fill, is founded directly on the basalt, but here its porous nature is no disadvantage. Provision has been made so that any water that gets through can drain freely into the pervious downstream fill and thence into a toe section of crushed rock and coarse gravel. And, as a matter of fact, the design is such that any small amounts of water penetrating the imprevious thickness upstream can actually drain into the porous basalt foundation un-

### Kalamazoo contractor builds smooth, access road

H. H. Shinville Co., Kalamazoo, Mich., uses a fleet of Adams motor graders for road construction work throughout southern Michigan. Here, one of his 123 hp "550's" lays base for a blacktop roadway. After grading for contour and drainage, 6" of gravel base was applied — in 2" compacted lifts. The photo, shown here, was taken as "550" prepared the top course of gravel for 2" blacktop surface. With engine-vibration isolated from cab and frame, by rubber engine mounts, operator Erskane Banghart worked at ease . . . and fast! Precise, positive controls made it easy to accurately prepare final grades. Says Shinville Field Engineer Walter J. Stewart, "We have 4 Adams machines, and, for our work, they certainly blade smooth and perform well."



Rubber mounts at 4 suspension points absorb engine vibration . . . prevent its transmission to frame and cab. Freed from this fatiguing annoyance, operators work better and more efficiently. Grader lasts longer, because assemblies stay tighter . . . machine is more accurate.

# SMOOTH GRADE...SMOOTH RIDE because engine is rubber-mounted

When you're working 8 to 12 hours a day, you just can't keep your grader engine always in perfect "tune". Ordinary wear-and-tear on any heavy-duty diesel — working at varied throttle setting and against changing work loads — is bound to produce vibration.

To isolate engine vibration from grader — and from operator — every heavy-duty Adams grader has its engine mounted on rubber.

#### No solid metal-to-metal contact

The engine on an Adams is mounted at four cushioned points, as shown in the illustration above. Heavy rubber sleeves and pads at these contact points dampen and absorb vibration forces. This prevents annoying — and destructive — engine vibration and noise from passing to frame and cab — as they would thru solid metal-to-metal contact.

#### Cab comfort boosts output

Freed from distracting and fatiguing engine vibration, your Adams operator can handle more work per day . . . can produce more accurate grades. He's not bothered by "the shakes" that sap physical strength . . . not numbed by constant irritation. On an Adams, your operator works with a clear head — and a smile. He gives you full-measure of quality output . . . works steadily, right up to quitting time.

#### Longer grader life

Your Adams grader will last longer . . . yet cost less to maintain than machines with rigid engine mount. Because Adams' rubber mounts isolate engine vibration from the machine, there is less fatigue of metal and welds. Bolts stay tighter . . . precise fitting parts hold position and do not wear on mating members. Blade mechanism is more rigid, requires less shim adjustment. You'll find that rubber engine mounts give added life to both stationary and moving parts . . . forestall maintenance problems . . . reduce downtime throughout the year.

#### Try it and see

Climb into an Adams cab. See and feel the difference that rubber engine mounts make in operator comfort . . . in machine protection. Note also the extra capacity for hard work that Adams builds into all models: 190, 150, 123, 115, 80 and 60* hp. Choice of General Motors or Cummins engine on 5 larger models. Feel free to call or write for complete information and demonstration without obligation.

*60 hp Model 220 not equipped with rubber engine mounts*

Adams—Trademark AG-1256 H-b-5

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BRIGHT COLORS
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*And get greater hardness at low cost . . . easily!*

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***Colors . . . Hardens . . .***
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Just sprinkle on the leveled and floated fresh concrete surface, then work into the surface with a wood float and finish with a steel trowel. You'll be amazed at the brilliance and depth of the two beautiful colors: Tile Red and Spanish Green.

Remember . . . ART-ROC is not just a surface film, but color that's built-in to stay . . and it's so easy to use!

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## . . . Turks plan big

**OLD AND NEW** in Turkey provide striking contrast. Shown is world's greatest monument to early engineering, 14 century old St. Sophia in Istanbul. Formerly a mosque and now a museum, it features a 107 ft dia dome made up of 40 ribs.

der the central pervious part of the dam where it can do no harm. This is accomplished by an inclined draining layer of crushed basalt placed between the impervious and the random fill sections of the dam and brought down to a connection with the basalt.

Demirkopru contains another feature that relates to the basalt formation. This is the locating of the power plant some 9,000 ft below the dam in the bed of the river, the stream itself being permanently diverted by a cofferdam into another natural channel on the other side of a ridge. The reason for this large seperation of dam and power plant is that at this point the river, having cut a narrow slit through the hard basalt, emerged into a softer formation which it gouged out to a considerable depth creating a falls. By locating the power plant at the foot of these falls, an additional 175 ft of head was gained over a location at the base of the dam.

The disadvantage of this location was that a long tunnel had to be driven through the basalt, and the toll which this hard abrasive material took on construction equipment was a contractor's nightmare. Moreover, steel rib supports had to be used every few feet. Some relief from tunneling was gained where the line of the power conduit crossed a valley, but the open cut work was just as difficult, and shovel teeth and tractor treads wore out in a matter of hours. Of the entire line, 7,000 ft is in tunnel and 2,000 ft in open cut.

As to the importance and purpose of Demirkopru Dam, it serves one of the lush agricultural valleys of Turkey as well as the important industrial region in and around Izmir. Large areas have been periodically flooded, and only small scale irrigation has been possible. With the completion of the dam 135,000 acres can receive sufficient water the year round, and a large investment in irrigation will be justified because of the absence of floods. It is estimated that the resulting increase in the value of agricultural products could reach $30 million annually.

In addition to the flood control and irrigation benefits, Demirkopru will have an annual energy output of 193 million kwh. Its power plant will be equipped with three 31,800 hp Francis turbines, and there will be three 23,000 kw generators. All in all the Demirkopru project is by far the most interesting technically of all of Turkey's current hydro schemes.

• **Future Plans**—Already Turkey's Department of Hydraulic Works (D.S.I.) which investigates future projects, its Electrical Power Survey Department (E.I.E.), which makes preliminary studies and designs, and its Etibank organization, which finances and administers the work, is sifting new projects for construction. For the most part they are on the same rivers where the present projects are located. One project is Kesikkopru, just downstream from Hirfalvi on the Kizilirmak, where a 170 ft concrete gravity dam is planned, with a power installation of 76,000 kw. Another is Ciceroz on the Sakarya just downstream from Sariyar Dam. Here a rockfill is contemplated to serve a power plant of 280,000 kw capacity. And there is a project on the Yesilirmak (Yellow River), called Almus, which would have an earthfill dam with a volume of 3.5 million cu yd.

But the greatest future project, and the one which the Turks hope to start first, is on the Euphrates River (called the Firat in Turkey). Known as Keban Dam, it would be a concrete gravity structure 490 ft high from the riverbed and with a volume of 2.7 million cu yd. But its most astonishing characteristic is the power capacity, planned to be supplied by ten 100,000 kw units. If and when Keban is built it could supply 4.2 billion kwh of energy annually, most of which would be transmitted to the Ankara area and on to the northwest. Moreover, studies have revealed three other damsites on the Euphrates before it reaches the Syrian border, and a total power potential of this great stream in Turkey of 15 billion kwh annually. Obviously there is no lack of hydro power possibilities for this forward looking country.

(*Continued on page 46*)

*A special interview*

# How ABRASIVE SAND problem was solved by rubber-tired tractor

Tournatractor's wide, low-pressure tires flex easily over sharp rocks without cutting . . . end age-old problem of rocks, sand, and dust clogging up track assembly.

One of many spare-time jobs handled by Tournatractor is building new haul road. Operator takes overburden dirt, drifts it on down to bottom, building up road grade.

Pit Mgr. Kent says: "Main reason we like our rubber-tired Tournatractor is its go-anywhere ability. It's quick on its feet . . . handles easier . . . maneuvers easier."

**You've probably seen the damage sand can do to your equipment . . . grinding away at exposed parts of earthmoving units. One machine — rubber-tired Tournatractor® — resists abrasion so well, however, that it's now the standard tractor in many sand areas. If, in your dirt-moving, your tractors frequently work in sand, or other abrasive materials, read what a sandpit superintendent — Ira Kent, Aubuchon Silica Mining Division of Portage-Manley Sand Co. at Festus, Mo. — has to say.**

**Q.** *"Mr. Kent, why did you choose Tournatractor?"*

**A.** "There's a lot of sharp silica sand around here, and much of our work is on rocky surfaces. When we used crawlers, we had a major problem in track maintenance. Our sand in those tracks worked just like a grinding compound. We had continuous pad and roller trouble. So we bought a Model C-2 Tournatractor in 1950, and liked it so much we bought our present improved Tournatractor in '52."

**Q.** *"What sort of work does your Tournatractor do?"*

**A.** "We use it for just about everything. Its main jobs are stripping overburden and cleaning up around our shovels. It also builds and maintains haul roads, takes out trees, pulls heavy equipment, and does a lot of clean-up after blasting. Actually, we've found that we don't have *any* tractor jobs that our Tournatractor can't do."

**Q.** ***". . . and what has the maintenance record been, Mr. Kent?"***

**A.** ***"Well, we've worked our Tournatractor 45 hours a week for almost 5 years, without any real trouble. Our one and only major repair expense in all that time has been replacement of the torque-converter oil-seal and bearings. We've never done anything to the engine . . . not even replacing an injector or anything. We never broke an axle, chipped a gear, or had a single major thing go wrong."***

**Q.** *"What about the electrical system and its maintenance?"*

**A.** "We like this electric control system . . . and it's never given us any trouble. In all this time, we have put in only one set of discs in the motor brakes, and two little switches. But that's it, so far as repairs are concerned."

**Q.** *"And the tires?"*

**A.** "Our present Tournatractor front tires are still the originals. We replaced the two back ones last spring, after better than 4 years of service. We've never had a blow-out, on any of the four. As to changing or repairing tires — you know that on Tournatractor, changing a tire is as easy as changing an 8.25 truck tire. That's another thing we like about this dozer. Lots easier than fixing track troubles."

**This owner-verified work report indicates how Tournatractor can solve your costly abrasion problem. Rolling on big rubber tires . . . with all parts sealed and protected against damage by rocks, sand, and other harmful materials . . . it gives you years of low-cost, trouble-free service. See your nearby LeTourneau-Westinghouse Distributor for full details and a working demonstration.**

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Simple to Operate

Highly Efficient

The Mayo Grouter quickly and easily places low-pressure grout in tunnels, mines, shafts, foundations, and subgrades. It also may be used to inject sodium silicate emulsions for stabilizing caving or running ground.

This versatile piece of equipment can readily be converted to a "Pea Shooter" for shooting Pea or "Birds Eye" gravel back of liner plates and backpacking outside lagging plates.

*Write for Free Bulletin 13 for full details and specifications.*

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TUNNEL AND MINE EQUIPMENT

LANCASTER, PENNA.

Consult with Griffin's engineers.

Ground water analysis and pre-bid estimate —no obligation.

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## . . . A cloud of construction dust

And it would be underrating Turkish impatience to assume that a large part of them would not be realized.

### Other Signs of Progress

But, as stated earlier, Turkish impatience with things as they are is not confined to the lack of power. Indeed the other manifestations of change are more obvious than the isolated and difficult-to-see dams. Istanbul offers the first and the best example that a traveler from the West will encounter. Here in this ancient city, with its minareted skyline undulating above its seven hills, up and down which narrow, tortuous streets tie traffic into almost inextricable knots, a transformation is taking place. It has been charged that the tearing down of the old and building anew is being done with no master plan as a guide and with only Premier Adnan Menderes' whims as the motive force. This may or not be true, but the objective is plain and the results are impressive.

Basically, the objective is to get some wide trafficways, which will encircle and penetrate the city's labyrinth. The fact that the task is being attacked from so many, seemingly unrelated points lends an air of confusion, but in almost every case what might be called a minor objective is apparent. This is to open up vistas of the city's great mosques, now mostly hidden in a shamble of slums. And even if this be regarded as an emotional rather than an engineering approach to city planning, it has its hard-headed business angle, for the mosques are one of the city's principal tourist attractions. And tourists can bring Turkey more foreign exchange earnings than any increase in exports which can now be envisioned.

But over and beyond this tearing down to achieve a better view of the city's monuments, it is clear to see how these stub-end thoroughfares can be interconnected to form a boulevard system. One almost continuous right-of-way is nearly completed along the Bosporus shore. Not only is a wide divided boulevard being built here, but new warehouses are under construction at the water's edge to improve the port's facilities.

Other clearing work has been undertaken along the Golden Horn, the waterway that divides the old and newer parts of the city, and the plazas at the ends of the two floating bridges are being doubled in size. Wherever this clearing work is under way, the scene is reminiscent of war destruction. And, indeed, since all of the buildings are masonry many of them have required dynamite to bring them down. A casual observer would say half of these old buildings are wood, but the wood is merely a sheathing put on to reduce some of the dampness engendered by stone walls, and perhaps to permit some variety in appearance.

In Istanbul, too, a new city hall is under construction, here and there a new apartment or office building can be seen under way, and across on the Asiatic side, a breakwater is nearly completed in the Bosporus to wall off a protected harbor. Evidence of construction activity can also be seen on a number of the minarets of the city's five hundred mosques. Apparently, like streets in American cities, they are continuously under repair.

Yet despite Turkey's push for modernity, the old and the new still jostle one another to provide striking contrasts. Out on the Anatolian Plain, wheat cut from huge fields is piled so that horses or donkeys pulling sleds over it can beat the grain loose, while on the horizon stand batteries of shiny new elevators ready to receive it. On the roads leading to Izmir, camel trains loom up in the dust raised by speeding motor trucks, while in the city itself, an International Trade Fair is being held, so replete with spectacular architecture, gardens and lighting effects that if set down in New York or Chicago it would cause a sensation.

These contrasts point up Turkey's situation and mood. The mood is one of impatience that they still exist, the situation one of frustration over the fact that its negotiable assets are too small, its credit too far gone to make progress any faster. But one hope still exists and pervades much of Turkey's thinking—the chance of a big oil strike in the east, where many foreign oil companies are prospecting. Failing this, there is still the chance that the oil companies in Iraq will build their proposed 1,500 mi, $850 million pipeline through Turkey to Iskenderun, to provide a safer outlet than their lines through Syria proved to be in last year's Suez crisis. Such a project would afford jobs to Turkish construction workers, bring in revenue in payment for transit privileges and cut down the cost of the oil that Turkey buys.

One thing is certain: If by some chance Turkey should become oil rich, the money from the black gold would be put to effective use. The impatience and frustration that are now her lot would fade away in a cloud of construction dust.

This is the second major on-the-spot report by ENR's chief editor Waldo Bowman an his current trip through Europe and the Middle East.

Tournapull spreads over mucky sub-base without miring down. With positive electric controls operating apron and tailgate, wet material was easily ejected from well-designed bowl without sticking. Spread over 50-ft. length took only 20 sec.

# Sure-footed "D's" fill in swamp for Florida paint plant site

Do you have trouble moving dirt on loose, slippery ground? Perhaps the experience of this contractor will help you solve your problem.

To build a firm sub-base for construction of an industrial plant on a 90-acre swamp area, C. N. & W. F. Mason Construction Co., Pensacola, Fla., used two 7½-yd. D Tournapulls and two 85 hp tractors. The site was a swampy tract near Telogia, in Liberty County, Fla. 50,000 yards of wet, silty loam, mixed with clay, had to be moved.

Material was difficult to handle because of its wet, sticky nature. D 'Pulls, however, were push-loaded with 4.8 pay yds. in 52 seconds. Rigs then hauled to low swamp areas where footing was very unstable. The second crawler dozed material out into the swamp at the fill.

### Pair moved 864 yds. per day

Loose, slippery loam didn't bog down D 'Pulls hauling and returning in this material. Rigs hauled 1300′ in 2.1 min. at an average speed of 7.2 mph . . . returned 1450′ in 1.8 min. at 9.2 mph. Load and spread times were 52 and 20 sec., respectively, in this material.

On this haul, each "D" averaged 9 loads per hour, for a combined total of 180 loads, 864 yds., per 10-hr. day.

When this swamp reclaiming job was completed, Newport Industries began erecting a plant on the site for processing lacquers, turpentine, and assorted paint products. As the first industrial plant to be built in Liberty County, it will furnish employment for 200 local workers.

### "Just right" on loose footing

C. N. Mason, a partner in the firm, has found the "D's" just right for jobs in sand and swampy areas. "They're fine for getting around in tight places," he said. "In any kind of material, these 'Pulls work well. I've worked 'em in sand where I thought they wouldn't go. And early on this job, they operated in swamp muck where the mud came up nearly to the engine."

### "D's" keep footing anywhere

So, if you have a problem of moving earth on loose or slippery ground, it will pay you to investigate the handy, maneuverable D Tournapull. Remember, too, that they're top producers in good conditions as well as bad. You can depend on them.

**New improved "D" with capacities to 9 yards heaped will work in areas where larger scrapers cannot go. Rig loads faster, dumps easier, keeps its footing in any material, has speeds up to 29.5 mph. New "D" meets 8′ width and 9-ton axle load limits for roading. Ask for complete specifications.**

Florida swamp bordering haul-road is typical of area where "D's" reclaimed wasteland for factory site. Tournapull's kingpin power-steer and torque-proportioning differential kept rigs out of trouble, though muck was often up over the Tournapull's axles.

Tournapull—Trademark Reg. U.S. Pat. Off. DP-1092-8-b

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1 1,790,000 lb. charge of Amocol ammonium nitrate blasting agent primed with 60% Extra dynamite erupts with controlled violence to break and displace over 2,500,000 cubic yards of quartzite, the largest industrial blast in the nation's history.

*Making mincemeat out of a mountainside . . .*

# THIS BLAST BROKE ALL RECORDS!

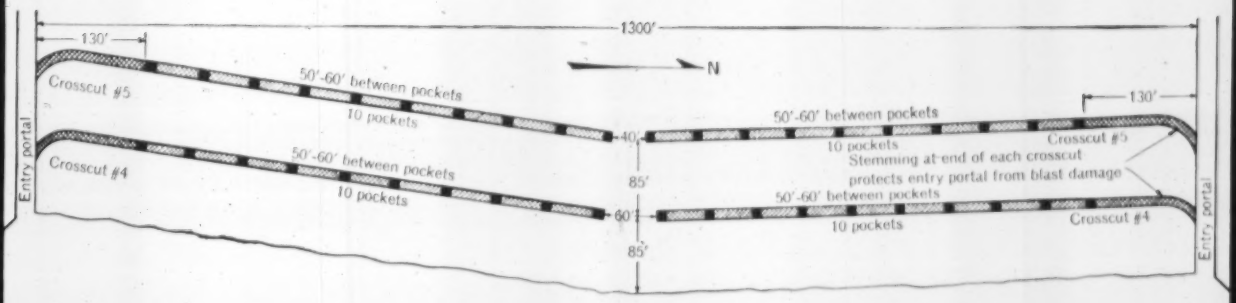
Two-and-a-half million cubic yards of rock broken by one construction blast! That's the record-smashing result achieved this summer at Little Valley, Utah, in the world's largest non-atomic blast.

Morrison-Knudsen Company, Inc., scored this industrial record with 1,790,000 lbs. of Atlas Amocol blasting agent and Atlas 60% Extra dynamite, detonated in two 1,300-foot coyote crosscuts driven from permanent entry portals (see sketch).

M-K engineers directing this project estimated that the blast produced over a tenth of the rock needed for the 13-mile causeway being built for the Southern Pacific railroad across the Great Salt Lake at Promontory Point.

Atlas is proud of the part its products and technical assistance played in making this historic blast a success.

EXPLOSIVES DIVISION
ATLAS POWDER COMPANY
WILMINGTON 99, DELAWARE
*offices in principal cities*




Plan of portals and crosscuts 5' x 7'

Height of burden from floor of crosscuts 200'

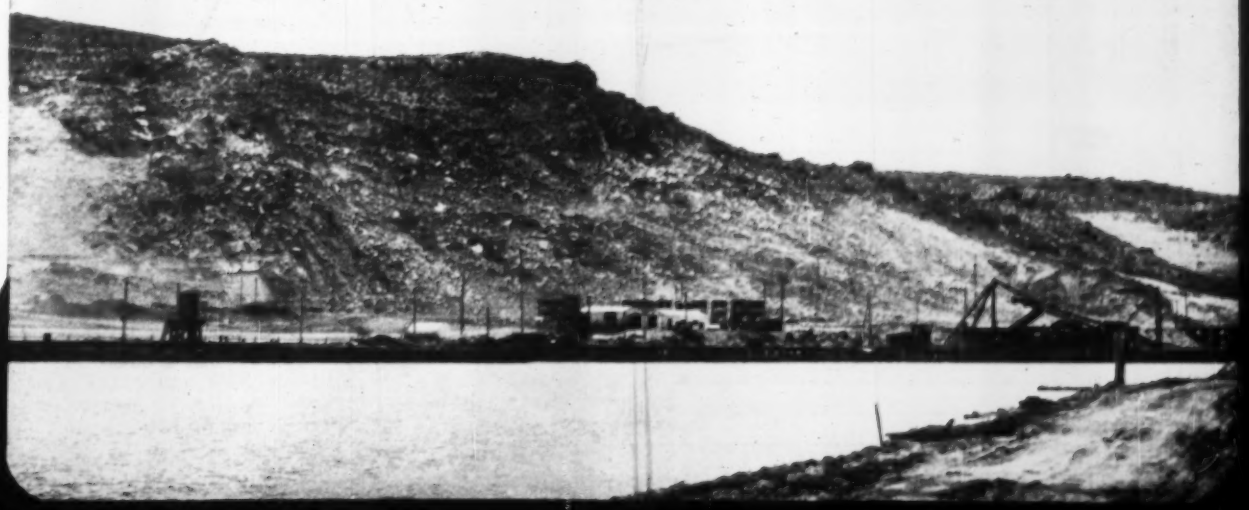
■ Explosives pocket

▩ Sand stemming

| Amount of explosives used: | |
|---|---|
| Atlas Amocol | 1,432,000 lb. |
| Atlas 60% Extra dynamite | 358,000 lb. |
| Total | 1,790,000 lb. |
| Amount of rock produced | 2,500,000 cu. yd. |

**2** The two 1,300-foot coyote crosscuts were fired 25 milliseconds apart with Rockmaster electric blasting caps attached to the detonating fuse connecting individual charges within each tunnel. The crosscut nearest the face was fired first to provide relief for the second.

**3** Muckpile shows uniform breakage and excellent displacement. Nearby buildings and equipment are untouched by throw. Only blast damage was to adjacent power and telephone lines which were purposely allowed to remain in shot area to minimize replacement costs. The rock will provide solid fill for causeway and also will be used as riprap in final stage of construction.



A NEW IDEA: Reclaiming Waste Space

# CORNELL AERONAUTICAL LABORATORY

## made valuable floor space out of extra head room with Movable HAUSERMAN Industrial Walls

At Cornell Aeronautical Laboratory in Buffalo, New York, additional office area was reclaimed from overhead space formerly wasted, in a building with a 32-foot ceiling. It was done by erecting a two-story office building of Movable HAUSERMAN Industrial Walls *entirely within the old building.*

Cornell Lab's plant engineering department conceived the plan . . . HAUSERMAN carried it out. Using standard industrial walls, HAUSERMAN engineers planned a building 25′ x 64′ x 18′ 6″; a second floor at the 9′ 6″ level with stair wells at each end. HAUSERMAN standard ceiling construction proved ideal for ventilating and lighting equipment for all of the second-floor offices as well as the first-floor shops.

With HAUSERMAN working as a subcontractor on jobs like this one, responsibility for the complete interior can be in one source of supply, reducing the need to coordinate several trades. Result: less time spent in field supervision . . . full profit on the job.

THE E. F. HAUSERMAN COMPANY
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Hauserman of Canada Ltd.
91 Yonge St., Toronto, Ontario

Please send your Hauserman Industrial Walls folder to:

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Title _____ Company _____

Street _____

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**MOVABLE**

**HAUSERMAN INTERIORS**

## Load Capacity High But Price Is Low

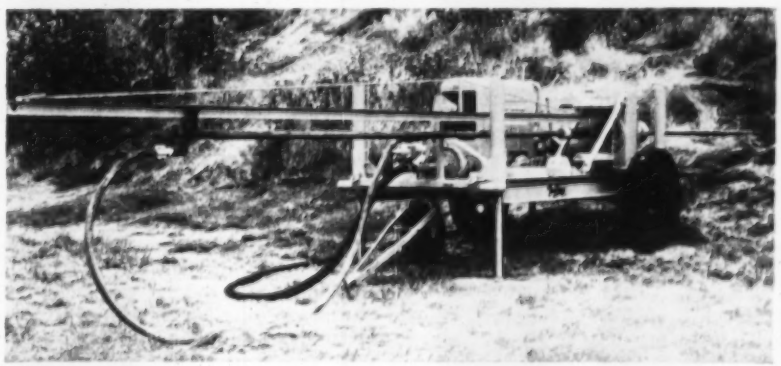
A low-priced 12 ton capacity low-bed trailer has been introduced for contractors and other equipment users with limited budgets.

Designated as the DFS-12, the single-axle semi makes use of two main beams and full-length outer channels as load carrying members to provide maximum strength with minimum weight.

Engineered for use behind standard fifth-wheel tractors, the trailer has an 8 ft x 14 ft oak deck platform, with a 41 in. gooseneck and 2 ft beavertail. It comes equipped with four 8.25 x 15 tires, ICC lights, lash rings, and air brakes. The brakes are the same design—with worm-type slack-adjusters and removable brake spiders—as are used on standard heavy-duty trailers, and are claimed by the manufacturer to be the largest, smoothest-running brakes available on 15 in. wheels.

The trailer has an 18,000 lb, 6 in. x 6 in. H-beam cambered axle designed for a gross load of 17,800 lb, with a gross load of 10,650 lb. on the kingpin.

Over 80 standard production model low beds are available—from 6 to 75 ton capacity—with flat, drop or tilting platforms and integral or removable goosenecks. LaCrosse Trailer Corp., LaCrosse, Wis.



## "Weep-Hole" Drill Designed to Reduce Slides

The newest addition to a present line of rotary drilling rigs is a horizontal "Weep-Hole" drill.

The first unit to be produced has been sold to the Oklahoma Highway Department.

This unit, which has a capacity for drilling 4¼ in. horizontal holes to a distance of 300 ft, was designed to relieve the causes of earth slides along highway or railroad rights-of-way due to excessive moisture. A perforated casing is inserted in the horizontal holes which permits continuous drainage of the affected areas. George E. Failing Co., Enid, Okla.

## Versatile Backhoe Model Increases Speed, Power

A new backhoe for mounting on International-Harvester utility tractors is now on the market.

It is said that with increased speed and power—plus greater loading height—this backhoe can handle a variety of trenching jobs, bell holes and foundation excavations, utility trenches and service lines.

The unit has a digging range of 190 deg, a digging depth of 12 ft and a loading height of 9 ft. Its link-lever swing system provides a cushioned swing and all normal swing linkage wear is automatically compensated and adjusted.

The subframe provides a sturdy mounting for backhoe, loader, dozer blade, mower and other attachments. The boom and dipper stick are welded box sections of high strength steel.

Its features include twin boom cylinders to provide down pressure, lifting capacity and break-out force; a hydraulic system with finger-tip control.

The hoe, with four pin mounting and two hose connections, is a complete self-contained unit and can be quickly and easily attached or detached. Wain-Roy Corp., Hubbardston, Mass.

## Line of Rock Rippers Adds Heavy Duty Model

A 6½ ton rock ripper has been developed for the Emco 105 tractor. The drawbar takes all draft loads, preventing strain on the tractor's transmission case, while ripper controls utilitize the tractor's hydraulic system without interfering with the loader or dozer.

Up to three ripper shanks may be mounted on the heavy-duty head frame.

Swivel mounting brackets allow the shanks to swing 30 deg and they follow the tractor like a trailer for easy steering even while ripping at full depth of 24 in.

Shank selection includes a curved gooseneck for rock ripping and a straight shank for ripping sandstone, gypsum, caliche and similar material.

A selection of seven types of self-sharpening points is offered to meet any job condition.

Overall width of the head frame is 102 in. and the distance between shanks is 43 in. American Tractor Equipment Corp., 9131 San Leandro Blvd., Oakland 3, Calif.

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New, modern power equipment like Pumps, Power Trowels, Transit Levels — can be yours to USE while you pay for it out of the extra profits it helps you produce! And you get . . .

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EQUIPMENT CO.
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## New Jersey Turnpike Will Use Foghorns for Safety

The New Jersey Turnpike Authority is experimenting with an electrically operated foghorn that has just been installed in the Elizabeth area.

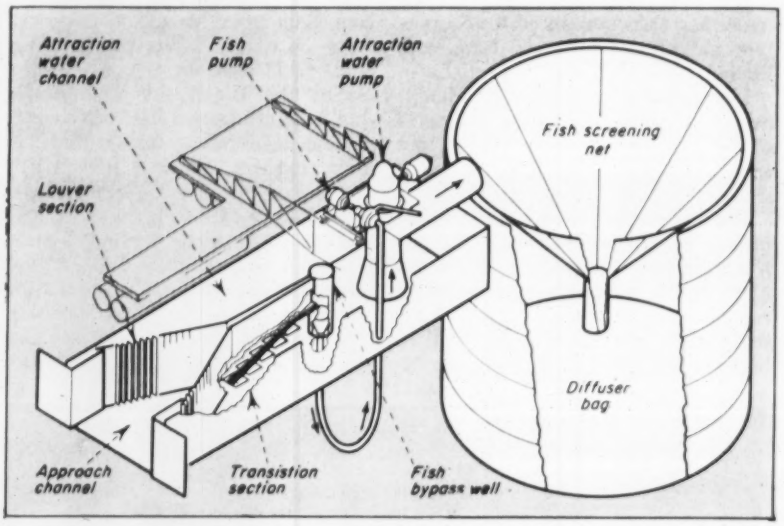
This horn will supplement existing signs that warn of fog ahead and caution motorists to drive slowly.

It has been installed near mile post 103 in the southbound lane on top of one of the speed limit signs, about 6 ft from the edge of the outside shoulder. Combination of fog and smoke from adjoining burning dumps have caused a smog condition that has compelled shutting down of the turnpike on several occasions during the early morning hours.

When fog develops, the horn will be turned on by the State Police. It functions intermittently and calls the attention of motorists to the condition.

The installation is part of a program designed to combat fog and increase safety, and calling for 40 additional warning signs to be put up along the turnpike. They will carry the message, "Drive Slow," to attract attention and mention the specific condition. Seventeen of these signs were installed initially in 1953. Others have been erected on the Newark-Hudson County extension and the direct connection with the Pennsylvania Turnpike.

To supplement these signs, operating procedures have been developed for use during fog, including the informing of motorists, the placing of flares and the recalling of off-duty personnel from the State Police detachment.




## Novel Fish Guiding Device Is Tested

John M. Hingst
First Lieutenant, Corps of Engineers
United States Army

A fish guiding and trapping device has been installed by the Washington State Department of Fisheries to determine whether it will capture downstream migrants at dams where the water level is drawn down periodically. The trap, placed in the forebay of the Mud Mountain flood control dam on the White River southeast of Seattle, sets up a current to attract young salmon migrants.

The trap is 36 ft long, 12 ft wide, 6 ft deep and weighs 10,000 lb. A 42-in. pump with a capacity of 30,000 gpm moves water into the trap. The water passes through louvers set on an angle to repel the fish and guide them into a 6 in. channel leading to a live box. A 5 in. pump of 600 gpm capacity attracts the fish into the live box from the trap.

Under the study program, fish in the live box will be transported around the dam in a tank truck. In a permanent installation, the fish would go into a chute or pipe which would pass them over the dam.

The work is being carried out with the financial cooperation of the Idaho Power Co., which has contributed $10,000 toward the project.

# Tru-Stop Brakes

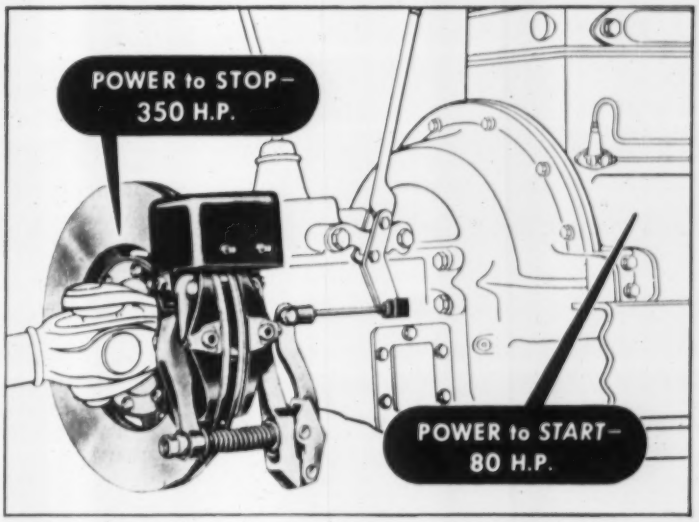
## Meet Every Heavy-Duty Safety Requirement

**OFFER POSITIVE PROTECTION AGAINST RUNAWAY OR PARKING ACCIDENTS—AT LOWEST COST**

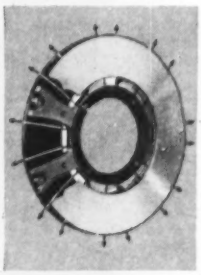
## HERE IS WHY:

### They have surplus power required for emergency service—no dangerous self-energizing

TRU-STOP Heavy-Duty Emergency Brakes are not only excellent parking brakes. They serve as a complete, independent and fully reliable braking system. Operating on the propeller shaft they enable the driver to continue on safely in the event of service brake failure. TRU-STOP brakes have the surplus braking capacity to be used *repeatedly* as an auxiliary to service brakes.

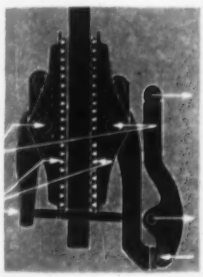



*Brakes actually do more work than the engine in terms of horsepower Where it takes 80 HP to accelerate to 20 miles per hour, it takes 350 HP to make a safe stop from 20 miles per hour within required limits*



### Ventilated to throw off heat

Brake efficiency depends on ability to throw off intense heat—rapidly. Discs of TRU-STOP brakes are exposed to the air even during the braking operation. Ventilated design circulates air *between* the disc plates.



### Give uniform brake pressure

Disc of TRU-STOP brakes is "squeezed" between the flat surface of the shoes. Effort applied to brake lever operates front and rear lever arms simultaneously. Pressure is exerted on the center of each shoe. Entire lining surface is in contact.

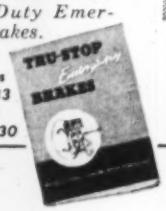
**FOR SAFE, ECONOMICAL, HEAVY-DUTY BRAKING WITH MAXIMUM LIFE AND MINIMUM MAINTENANCE**

**TRU-STOP Brakes are used on a great variety of mobile and stationary equipment**

***SUCH AS—***

- Motor cranes
- Road rollers
- Dump trucks
- Power dividers
- Cooling tower fans
- Oil well pumps
- Cold header presses
- Scrubbing machines
- Wire rope stranders
- Fork lift trucks
- Motor scrapers
- Tractors
- Graders
- Diamond core drills
- Electric locomotives
- Oil well servicing rigs
- Railway inspection cars
- Shapers
- Power take-offs
- Winches
- Motor shovels
- Tractor loaders
- Conveyors
- Hard rock drill positioners
- Mine locomotives
- Power presses
- Railway power ballisters
- Cable tool spudders
- Aerial tram cars
- Tension wire stringers

*We will be glad to answer any questions or give you more detailed information about TRU-STOP Heavy Duty Emergency Brakes. Send for Catalogs DH-33 and DH-530*

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**PROPANE**
**6000 C.P.**
**FLOODLIGHT**

50-150 hours light on 20 lb. tank of Propane.

Safe, totally weatherized, completely portable.

Adjustable volume of light.

Throws beam about 100 x 250.

Lights instantly with match in —45° temperatures.

**Also available on 4 to 8 ft. telescopic stand.**

Used by contractors, railroads, municipalities, parks and industrial plants.

***Dealer inquiries invited***

*WRITE, WIRE OR PHONE*
**WM. W. LEE and SON**
20 EAST JACKSON BLVD.
CHICAGO 4, ILLINOIS

**Kinnear Rolling Doors**

Kinnear Steel Rolling Doors *introduced the* **single-shaft torsion spring**. It assures *uniform* spring action . . . *uniform* regulation of operating ease from a **single adjustment wheel**. Many other special features make Kinnear your best door buy! Send for catalog!

KINNEAR ROLLING DOORS
*Saving Ways in Doorways*

**The KINNEAR Mfg. Co.**
*1820-40 Fields Ave., Columbus 16, Ohio*
*1742 Yosemite Ave., San Francisco 24, Calif.*



# Prestressed Bridges for Idaho Secondary Road

Contract for improving this 5.274 mi stretch of secondary state highway, built as a low standard county road 40 years ago, was awarded to Pickett & Nelson, Idaho Falls, Idaho, for $493,548. By their bid of "no cost" for 5,350 M gal for watering embankments, they came 1% under the second low bidder whose price on this item is $13,375. Plans were prepared by the Idaho State Highway Department, Rigby, Idaho. H. B. Sternberg is district engineer. The job is in Bonneville and Jefferson Counties.

An alternate bridge design, using pretensioned concrete, was selected by the contractor for the 105 ft long, 34 ft wide bridge over Dry Bed Canal. The cost of this bridge is $36,070, 7.3% of the total contract. Another bridge, 70 ft long, 34 ft wide, costs $33,911 which is 6.9% of the total bid.

Removal of the old pavement and drainage structures; excavation, borrow and haul; new 34 ft wide pavement with 5¾" base course and bituminous treated, crushed rock surface; new drainage structures including three arch type pipe culverts; wire fencing and steel gates; and street lighting and traffic signals amounts to $423,567, 86% of the total cost.

Since most structures are over irrigation canals and ditches, the contractor must complete all structures to the stage where water can be turned in by irrigation time.

Specifications require 6 sacks of cement per cu yd of class A concrete or that it test at 3000 lb per sq in. at 28 days.

The six bidders include:

| | | |
|---|---|---|
| 1C | Pickett & Nelson, Idaho Falls, Ida | $493,548 |
| 2 | Max A. Boesiger, Mountain Home, Ida | 498,806 |
| 6 | W. R. Cahoon Const Co., Pocatello, Ida | 532,849 |

| Bids: 3-26-57<br>Items | Unit | Quantity | Unit Prices 1C | 2 |
|---|---|---|---|---|
| **Roadway** | | | | |
| Selective remov, trees | ea | 146 | $35 00 | $42 00 |
| stumps | ea | 14 | 15 00 | 16 00 |
| Remov, culvert | ea | 5 | 150 00 | 160 00 |
| siphon | ea | 5 | 150 00 | 105 00 |
| conc pavement | sy | 140 | 1 00 | 2 20 |
| fence | lf | 8,500 | 0 15 | 0 11 |
| conc headwalls | ea | 2 | 20 00 | 21 00 |
| masonry headwalls | ea | 14 | 15 00 | 21 00 |
| misc conc irr strs | ea | 3 | 50 00 | 25 00 |
| Exc, unclass | cy | 14,280 | 1 25 | 2 10 |
| struct | cy | 1,045 | 3 00 | 2 50 |
| Borrow | cy | 163,800 | 0 38 | 0 42 |
| Haul | yu | 127,500 | 0 45 | 0 47 |
| Water embankments | Mgal | 5,350 | 0 00 | 2 50 |
| base & surf crse | Mgal | 2,040 | 1 50 | 2 10 |
| Roll, power roller | hrs | 332 | 8 00 | 10 00 |
| tamping roller | hrs | 66 | 8 00 | 12 00 |
| pneu tire roller | hrs | 2,125 | 8 00 | 13 00 |
| Mech tamping | cy | 1,205 | 2 50 | 3 20 |
| Small ditches | lf | 13,800 | 0 25 | 0 25 |
| Base crse, sel, max, 3" | t | 10,400 | 1 00 | 1 00 |
| cr gr, 2" | t | 39,900 | 1 30 | 1 00 |
| ¾", tp B | t | 17,000 | 1 45 | 1 35 |
| Asph rd matl, MC-0 prime | gal | 46,000 | 0 18 | 0 20 |
| Blotter matl cl B | t | 662 | 2 00 | 2 10 |
| Surf tr tp C asph rd matl | | | | |
| MC3 | gal | 44,150 | 0 18 | 0 20 |
| MC5 | gal | 37,800 | 0 18 | 0 20 |
| cov ct matl cl 6 | t | 2,215 | 4 00 | 4 20 |
| cl 3 | t | 1,900 | 5 00 | 4 20 |
| Asph rd matl, plmix 85-100, 100-120 or 150-200 pen | t | 43 | 46 00 | 42 00 |
| Plmix bit srf cl A, B, C or D | t | 775 | 8 00 | 12 00 |
| Conc, cl A | cy | 358 | 75 00 | 63 00 |
| Metal reinf | lb | 44,600 | 0 16 | 0 15 |
| Timb untreated #1 common | mfbm | 0 1 | 200 00 | 300 00 |
| Pipe culv, 12" | lf | 960 | 3 00 | 2 20 |
| 18" | lf | 260 | 4 25 | 3 50 |
| 24" | lf | 320 | 6 00 | 5 00 |
| 30" | lf | 260 | 7 50 | 6 00 |
| arch, 28x18" | lf | 84 | 7 00 | *8 50 |
| 36x22" | lf | 120 | 8 50 | 10 00 |
| 43x27" | lf | 86 | 14 00 | 16 00 |
| CMP relay, 12" 18" | lf | 34 | 2 00 | 3 00 |
| Pipe siphon, 24" | lf | 90 | 8 50 | 10 00 |
| 30" | lf | 140 | 12 00 | 12 00 |
| Loose riprap | cy | 35 | 8 00 | 20 00 |
| Comb conc crb & guttr, tp A | lf | 1,275 | 2 50 | 2 50 |
| Wire fence, tp 3A | lf | 12,500 | 0 35 | 0 31 |
| 1A | lf | 480 | 0 30 | 0 25 |
| tp 3B mod 39" mesh salv exist mesh | lf | 1,980 | 0 45 | 0 31 |
| 3B mod 47" mesh | lf | 2,700 | 0 47 | 0 37 |
| 3A mod 39" mesh | lf | 1,100 | 0 42 | 0 34 |
| Steel gate tp 2, 8' | ea | 84 | 45 00 | 47 00 |
| 10' | ea | 4 | 48 00 | 65 00 |
| 12' | ea | 18 | 55 00 | 63 00 |
| 14' | ea | 6 | 65 00 | 78 00 |
| Project markers | ea | 2 | 30 00 | 30 00 |
| Right of way markers | ea | 32 | 8 00 | 8 50 |
| Reflect prec white conc curb | lf | 1,850 | 3 00 | 3 60 |
| traf separator | lf | 430 | 4 50 | 4 20 |
| Move & reset conc hdgates | ea | 7 | 25 00 | 27 00 |
| fence | lf | 16,120 | 0 30 | 0 28 |
| gates | ea | 8 | 25 00 | 32 00 |
| cattle grds | ea | 1 | 50 00 | 105 00 |
| Wld SP & pres sys, 10" spir | ls | job | 1,000 | 1,933 |
| Constr sink well system | ea | 2 | 300 00 | 261 00 |
| Remove cattle guards | ea | 2 | 10 00 | 26 00 |
| Street light, spec item | ls | job | 8,500 | 6,790 |
| Traf signals, spec item | ls | job | 18,000 | 1,672* |
| Conc driveway, tp A | sy | 240 | 4 50 | 4 80 |

*other 4 bids ranged $15,250 to $18,500

| Bids: 3-26-57<br>Items | Unit | Quantity | Unit Prices 1C | 2 |
|---|---|---|---|---|
| **Canal Bridge Alt No 2** | | | | |
| Remove bridge | ea | 1 | 2,500 | 3 15 |
| Exc, struct | cy | 700 | 2 00 | 2 50 |
| Mech tamp | cy | 350 | 2 00 | 3 20 |
| Conc cl A, prec strgs & post | cy | 0 3 | 120 00 | 120 00 |
| cast in pl | cy | 255 | 80 00 | 66 00 |
| cl AA, pretens strgs | cy | 33 | 125 00 | 120 00 |
| Metal reinf | lb | 26,017 | 0 16 | 0 15 |
| Steel structural | lb | 693 | 0 50 | 0 33 |
| beam hndrl for conc strs | lf | 200 | 7 00 | 5 00 |
| Prestr reinf & pretens | ls | job | 1,000 | 50 00 |
| **Bridge Alt No 1** | | | | |
| Remove bridge | ea | 1 | 2,000 | nb |
| Exc, unclass, ch ch | cy | 520 | 1 50 | nb |
| struct | cy | 53 | 4 00 | nb |
| Mech tamp | cy | 42 | 2 50 | nb |
| Conc cl A, prec strgs & post | cy | 53 | 88 00 | nb |
| cast in pl | cy | 116 | 78 00 | nb |
| Metal reinf | lb | 43,550 | 0 16 | nb |
| Steel, structural | lb | 485 | 0 50 | nb |
| beam hndrl for conc strs | lf | 225 | 7 00 | nb |
| Furnish pile driv equip | ls | job | 1,200 | nb |
| steel shell or casing | lf | 600 | 7 50 | nb |
| Drive test pile, one | lf | 36 | 10 00 | nb |
| steel shell or casing | lf | 564 | 4 00 | nb |
| **Bridge Alt No 2** | | | | |
| Remove bridge | ea | 1 | nb | 850 00 |
| Exc, unclass ch ch | cy | 520 | nb | 2 10 |
| struct | cy | 53 | nb | 2 50 |
| Mech tamp | cy | 42 | nb | 3 20 |
| Conc cl A, prec strgs & posts | cy | 0 3 | nb | 120 00 |
| cast in pl | cy | 117 | nb | 79 00 |
| cl AA, pretens strgs | cy | 49 | nb | 120 00 |
| Metal reinf | lb | 23,135 | nb | 0 15 |
| Steel, structural | lb | 650 | nb | 0 33 |
| beam hndrl for conc strs | lf | 225 | nb | 5 00 |
| Furn pile driv equip | ls | job | nb | 2,000 |
| steel shell or casing | lf | 600 | nb | 6 30 |
| Driv test pile, one | lf | 36 | nb | 20 00 |
| stl shell or casing | lf | 564 | nb | 3 65 |
| Prestress reinf & pretens | ls | job | nb | 50 00 |

Completion Schedule: Principal Items 1-157
Lighting & Signal 11-1-57
Liquidated Damages: $75 and $30 per day

## FOR MANILA... MONOTUBE PILES BY THE TRAINLOAD

. . . 56-car trainload of Monotube piles . . . final destination Manila, Philippine Islands

PROJECT—Improvement and reconstruction of piers in Manila Harbor
TYPE PILE—FN
TIP DIAMETER—8 inches
BUTT DIAMETER—18 inches
GAUGE—#3
LENGTH—110-160 feet
UNSUPPORTED LENGTH—40-50 feet
DESIGN LOADING—50-60 tons
NUMBER OF PILES—4310 piles

Tapered, fluted Monotube piles are available in lengths, diameters and gauges to meet every requirement. Write The Union Metal Manufacturing Co., Canton 5, Ohio, for complete information.

# UNION METAL

*Monotube Foundation Piles*

# Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

**See following ENR issues for OTHER PRICES:**

- Iron and Steel Products: Last, Sept. 12; Next, Oct. 17
- Wood Products, Glass, Explosives, Chemicals: Sept. 19; Next, Oct. 24
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Sept. 26; Next, Oct. 31
- Wage Rates, Building Board, Lath, Insulation: Last, Oct. 3; Next, Oct. 31

## CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

| | PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted | | | SAND AND GRAVEL Per ton, carload lots | | | CRUSHED STONE Per ton, carload lots | | CRUSHED SLAG Per ton, carload lots, f.o.b. plant | | CONCRETE BLOCK 8x8x16-in.* truckload del.* per block | | CONCRETE Ready Mixed 1:2:4 del. 50 cy & over |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Paper | Bulk | Mortar | Gravel, 1½ in. | Gravel, ¾ in. | Sand | 1½ in. | ¾ in. | 1½ in. | ¾ in. | Sand grav. | Lt. wgt. agg. | |
| Atlanta | $4.31a | $3.90a | $3.57 | $2.18 | $2.28 | $2.50‡ | $2.18 | $2.33 | $1.55 | $1.65 | $0.175 | $.... | $13.75g |
| Baltimore | 4.45c | 4.05c | 3.52c | 2.80‡a | 2.80‡a | 2.25‡a | 2.85‡a | 2.90‡a | 2.05‡a | 2.00‡a | .18 | .18a | 12.95/13.45 |
| Birmingham | 4.08 | 3.15f | .... | 2.53n | 2.53n | 2.13n | 2.75 | 2.75 | 1.55 | 1.65 | .18 | .18 | 12.55 |
| Boston | 5.75ha | 4.67a | 4.79e | 3.00a | 3.00a | 3.00a | 1.75a | 1.85a | .... | .... | .23 | .275a | 15.00h |
| Chicago | 4.13a | 3.72a | 3.65/3.78 | 3.78‡b | 3.78‡b | 4.13‡b | 3.95‡b | 3.95‡b | 2.25‡ | 2.25‡ | .25 | .25b | 13.50 |
| Cincinnati | 4.46c | 4.05c | 4.03 | 2.29‡c | 2.34‡c | 2.34‡c | 2.64‡c | 2.64‡c | 1.89 | 1.89 | .19 | .24a | 13.25 |
| Cleveland | N.A. in C.L. | .... | 3.88a | 2.15ef | 1.95f | 1.65 | 4.50‡a | 4.50‡a | 3.35‡a | 3.35‡a | .... | .215 | 16.15 |
| Dallas | 3.55a | 3.15a | 3.43 | 2.60 | 2.65 | 1.90 | 2.43 | 2.63 | .... | .... | .... | .27 | 11.25 |
| Denver | 4.69a | 4.19a | 4.69 | 1.90 | 2.05 | 1.20 | .... | .... | .... | .... | .22 | .245a | 10.70 |
| Detroit | 4.10a | 3.60ag | 3.73 | 4.50‡b | 4.50‡b | 4.25‡b | 3.75‡ | 3.75‡ | 3.50‡ | 3.50‡ | .23 | .24a | 14.20 |
| Kansas City | 4.45i | 3.96a | 4.25 | .... | .... | 1.70‡a | 2.00‡a | 2.00‡a | .... | .... | .23a | .26c | 14.00 |
| Los Angeles | 5.12eh | 4.88eh | 5.00 | 2.50‡a | 2.76‡a | 2.61‡a | 2.41‡a | 2.46‡a | .... | .... | .14/m | .24m | 12.95/h |
| Minneapolis | 4.44a | 4.04a | 4.10 | 2.70‡ag | 2.70‡ag | 1.60‡ag | 3.25‡ag | 3.25‡ag | .... | .... | .19 | .... | 14.30f |
| Montreal | 3.21d | 2.96d | 3.60 | 1.95‡a | 2.20‡a | 2.25‡a | 1.95‡s | 2.20‡s | 2.00 | 2.00 | .20 | .20a | 10.80ek |
| New Orleans | 3.75a | 3.45a | 3.70 | 2.44 | 2.44 | 2.00 | .... | .... | 1.45 | 1.65 | .275 | .... | 13.65 |
| New York | 4.83a | 4.42a | 3.72 | 3.20bk | 3.20bk | 2.30bk | 3.10bl | 3.10bl | .... | .... | .265 | .32b | 17.40an |
| Philadelphia | 4.57‡a | 4.16‡a | 3.61‡ | 2.85‡a | 2.85‡a | 2.35‡a | 2.70‡ | 2.80‡ | 2.00 | 2.35 | .25/.32 | .... | 14.15do |
| Pittsburgh | 5.50fjk | 4.47bj | 5.00bjl | 2.60aq | 2.60aq | 3.00aq | 2.00e | 2.00e | 2.10 | 2.10 | .26 | .28 | 15.55 |
| St. Louis | 4.01/4.33e | 3.61/3.93e | 3.86/4.18 | 3.25am | 3.10am | 2.40/3.10am | 1.65y | 1.75y | .... | .... | .24 | .30e | 12.40/12.90 |
| San Francisco | 3.94e | 3.54e | 4.38e | 2.02 | 2.02 | 2.12 | 2.17 | 2.17 | .... | .... | .24 | .28el | 12.75e |
| Seattle | 4.30a | 3.75a | 4.45a | 4.00‡bm | 4.00‡bm | 4.00‡bm | 4.50‡bm | 4.50‡bm | .... | .... | .26 | .37c | 13.30y |
| Toronto | 4.03 | 4.03 | 4.03 | 2.40‡ | 2.40‡ | 2.05‡ | 2.20 | 2.20 | 2.20 | 2.20 | .25 | .275c | 15.25 |

‡ Delivered. * Prices incl. dealers discount except as noted.

**CEMENT:** *a Less 10¢ disc, 15 days. *b Less 2% disc, 15 days. *c Less 10¢ disc, 10 days. *d Truckload lots, deliv. 10¢ disc, 20 days. *e Truckload lots *f Fob mill, add 14.5$ to $21.31 per car switching charges *g fob mill + freight *h LCL. *i Less 2% disc, 10 days *j Truck lots, fob yard *k 100 bag lots *l over 150 sacks

**SAND, GRAVEL, STONE & SLAG:** *a Truck lots. *b Per cu. yd. *c 5 tons or more. *e ½". *f Pea gravel. *g Less 5% for cash. *h Less than 5 tons. *i Plus 5% mun. & prov. tax *j F.o.b. quarry. *k Barge lots asd. *l F.o.b. scow Hudson river. *m Less 2% for cash. *n F.o.b. cars. *q fob yard

**CONCRETE BLOCK:** *a Cinder *b Waylite. *c Haydite. *d Celocrete *e 5¼ x 8 x 12 in. *f 8 x 4 x 16. *g F.o.b. truck at job. *i F.o.b. plant San Rafael. *m F.o.b. yard.

**READY MIXED CONCRETE:** *a 5 cu. yds. or over del. Man. *b 28 cu. yds or more *c 10-100 cy. brackets. *d 1-3 mi. zone. *e 2,000 lb comp. *f 2,500 lb. comp. *g Less 25¢ disc, 15 days. *h Less 50¢ for cash. *i 5% off for cash. *j 2% off for cash. *k Federal tax included. Add 5% mun. & prov. *l 1:2½:3½. *m F.o.b. yard. *n Plus escalator clause. *o Add 15¢ for ea. add'l 1-mi zone.

**CASH DISCOUNTS CEMENT to Contractors:** Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 18 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

### CURRENT MAXIMUM PRICES AT CEMENT MILLS

**Charge for bags not included. For paper bags add 40¢ per bbl., not refundable.**

| | Bulk | | Bulk | | Bulk | | Bulk | | Bulk |
|---|---|---|---|---|---|---|---|---|---|
| Richard City, Tenn | $3.30† | Buffington, Ind | $3.25† | Steelton, Minn | $3.45† | Muskegon, Mich | $3.30† | Toledo, O | $3.30† |
| Clinchfield, Ga | 3.30† | Independence, Kan | 3.10† | Leeds, Ala | 3.15† | Saginaw, Mich | 3.30† | Milwaukee, Wis | 3.35† |
| Kingsport, Tenn | 3.30† | Hannibal, Mo | 3.35† | Duluth, Minn | 3.45† | Wyandotte, Mich | 3.30† | Green Bay, Wis | 3.35† |
| West Des Moines, Iowa | 3.35† | Northampton, Pa | 3.35† | Hudson, N. Y | 3.35† | Buffalo, N. Y | 3.40† | Ironton, O | 3.30† |
| Nazareth, Pa | 3.35† | Universal, Pa | 3.45† | Alpena, Mich | 3.20† | Oswego, N. Y | 3.45† | Montreal City | 2.55† |
| Bath, Pa | 3.35† | Waco, Tex. (+ 10¢ tax) | 3.35† | Detroit, Mich | 3.30† | Cleveland, O | 3.35† | W. Winfield, Pa | 3.45† |
| Lesley, Pa | 3.35† | Giant, S. C | 3.35† | Howes Cave, N. Y | 3.35† | Alsen, N. Y | 3.35† | Security, Md | 3.35† |

† Prices to hold for fourth quarter of 1957.

## PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

| | PAVING BRICK AND BLOCK | | | PAVING ASPHALT Per ton, less than 80 penetration | | ASPHALT BINDERS FLUXES Per gal., 80-300 penetration | | CUTBACK ASPHALT MC per ton | | ROAD OIL Per gal. | ASPHALT EMULSION RSI Per gal. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Granite Per M lots of 60,000 4x4x8 in. | Brick per M 3x4x8½ in. carload lots | Wood per sq. yd. 3½ in. 16-lb. treat | Tank car | Drums | Tank car | Drums | Tank car | Drums | Tank car | Tank car | Drums |
| Atlanta | .... | .... | .... | $30.50 | $45.00 | $0.15 | $0.26 | $0.125Pw | $0.28Pw | $0.14 | $0.125 | $0.30 |
| Baltimore | 150.00‡ | .... | .... | 23.00s | .... | .095s | 0.185s | 10swE | 19swE | 10s | .105s | 0.195s |
| Birmingham | .... | 62.00s | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Boston | .... | .... | .... | 24.00ap | 46.00ap | 24.00as | 46.00as | 11aFw | 24aFw | .11ao | .174aGo | .25aGo |
| Chicago | 150.00‡ | 90.00‡b | 3.95/4.00‡j | 24.25b | 34.25b | 21.40be | 31.40be | 11bwH | 19bwH | .085b | .... | .... |
| Cincinnati | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Cleveland | .... | 89.50d | 6.30g | 25.00A | .... | 25.00A | .... | 1115AwF | .... | .... | .1115AG | .21AG |
| Dallas | e | 40.00 | e | 26.35 | 45.39 | .1116 | .1944 | 29.80 | 51.40 | .1080 | .1116 | .1994 |
| Denver | .... | 56.00 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Detroit | .... | 115.00 | .... | 32.45 | .... | 32.45s | .... | 1361wI | .... | .1133 | .... | .35 |
| Kansas City | e | e | e | 18.00cl | .... | 18.00y | .... | 0925cwJ | .... | .085c | 0.125e | .... |
| Los Angeles | e | .... | e | 21.00dmz | .... | 21.00dnz | .... | 22.50dzK | .... | 21.50de | .097 | .197 |
| Minneapolis | .... | .... | 3.73h | 29.50 | .... | 29.50 | .... | 0.125w | .... | 0.115 | .134 | .... |
| Montreal | e | e | e | 32.50n | 44.80n | .176n | .226n | 18.70nuK | 23.70nuK | .154n | .242ns | .27ns |
| New Orleans | .... | .... | .... | 20.00e | e | 20.00ee | e | 095ew | e | .085B | .095BL | .... |
| New York | .... | .... | 3.70f | 26.80qCD | 47.32qD | 26.80wCD | 47.32wD | 1273wCDF | 2139wDF | .... | .1273CD | .2163D |
| Philadelphia | 175/185 | 110/120 | 4.08 | 24.00 | .... | 24.00 | .... | 11wF | .... | 105 | .... | .... |
| Pittsburgh | 60.00k | 99.12ln | 6.35 | 28.30s | .... | 30.90w | .... | 1351i | .... | 14‡ | .1351i | .... |
| St. Louis | .... | .... | .... | 22.90f | .... | 1825 | .... | 1035fwM | .... | 0.165 | .825 | .... |
| San Francisco | .... | 70.00e | .... | 23.00g | 40.00g | 23.00gks | 40.00gks | 24.00gN | 41.50gN | 23.75eg | .19y | .19y |
| Seattle | .... | .... | .... | 27.00z | 40.50h | 27.00s | .... | 28.50K | .... | 24.75hs | .10h | .11hr |
| Toronto | .... | 125.50 | 4.50 | 40.10 | 59.38 | 0.2004 | 0.2445 | 0.214w | 0.258w | 0.198f | 0.216 | .271 |

‡ Delivered.

**PAVING BRICK & BLOCK:** *b 3 x 4 x 8. *c 2½ x 8½ x 4. *d LCL, truck deliveries. *e Not used. *f 2" interior 6¢ treat. *g 3". *h 2" tr. 8¢ *i 3 x 3½ x 8½. *j 2½", 6 lb. tr. *k Used. *l Redshale; clay $101.32. *m Pine; oak $6.57. *n Truck del.

**ASPHALTS:** *a Price at plant, Everett, Mass. *b F.o.b. refinery, Lockport, Ill. *c F.o.b. Sugar Creek, Mo. *d F.o.b. refinery, El Segunda. *e F.o.b. Baton Rouge. *f F.o.b. Wood River, Ill. *g F.o.b. Richmond, Calif. *h F.o.b. Martinez. *i F.o.b. refin ry. Baltimore. *j F.o.b. refinery, Inglewood, Calif. *k 50-110 penetr. than 100 penetr. *m 40-80 penetr. *n Fed. tax included; add 5% for mun. & prov. *o Drums not avail. Shipped in steel bbl. *p 60/70 penetr. *q 40/300 penetr. *r In customer's drums. *s Shipped in drums, per drum. *t 85/300 penetr. *u Per 100 gal. *v Per ton. *w Per gal. *x Also tank trucks. *y F.o.b. Oakland. *z F.o.b Edmonds. *aA F.o.b. refinery, Cleveland. *bB F.o.b. Destrehan, La. *cE RC. *dF Also RC. *eG Also MS, SS. *fH RC 0-5 incl. *iI MC 4. *jJ MC, RC $0.095 *kK MC 3, 4 & 5. *lL MS. *mM MC 1-5, RC 1-5, $0.106. *nN MC 3. *oO Truckload. *pP F.o.b. refinery Savannah: $0.09/gal., tank cars; $0.20/gal., drums. *qQ F.o.b. Eldorado, Ark.

**New Junior High School, *Burlington, New Jersey***
Designed by Micklewright & Mountford, Architects-Engineers, Trenton, N. J. and Morrisville, Pa.

# AMBRIDGE STEEL JOISTS

## speed construction of another modern school

THE MODERN ONE- AND TWO-STORY SCHOOL BUILDING shown above is a good example of the use of open-web steel joists in construction of this type. Used for the roof, ceiling and floor supports of the 430' x 346' irregularly shaped steel-frame building, the USS AmBridge Steel Joists not only contribute to its structural soundness and fireproofing, but in the gym and auditorium they provide the strength needed to carry the weight of the roof across exceptionally wide columnless floor areas.

American Bridge was contractor for the steelwork on this project. In addition to fabricating and erecting 127 tons of USS AmBridge Standard and Longspan Steel Joists with bridging, we also fabricated and erected 100 tons of structural steel for the framework of the long, wide building.

USS AmBridge Steel Joists provide rigid, lightweight and economical construction suitable for any type of floor, roof and ceiling. Their design permits maximum headroom and allows for passage of pipes, ducts and conduits in any direction. In floor construction, the ease and simplicity of handling reduces installation time to a minimum and permits other trades to begin their work promptly. For roof construction, these same advantages cut the time required to put your structure under cover.

For detailed information about the time- and money-saving advantages of using USS AmBridge Steel Joists on your next job, contact the nearest Contracting Office, or write direct to Pittsburgh for a free copy of our 40-page catalog.

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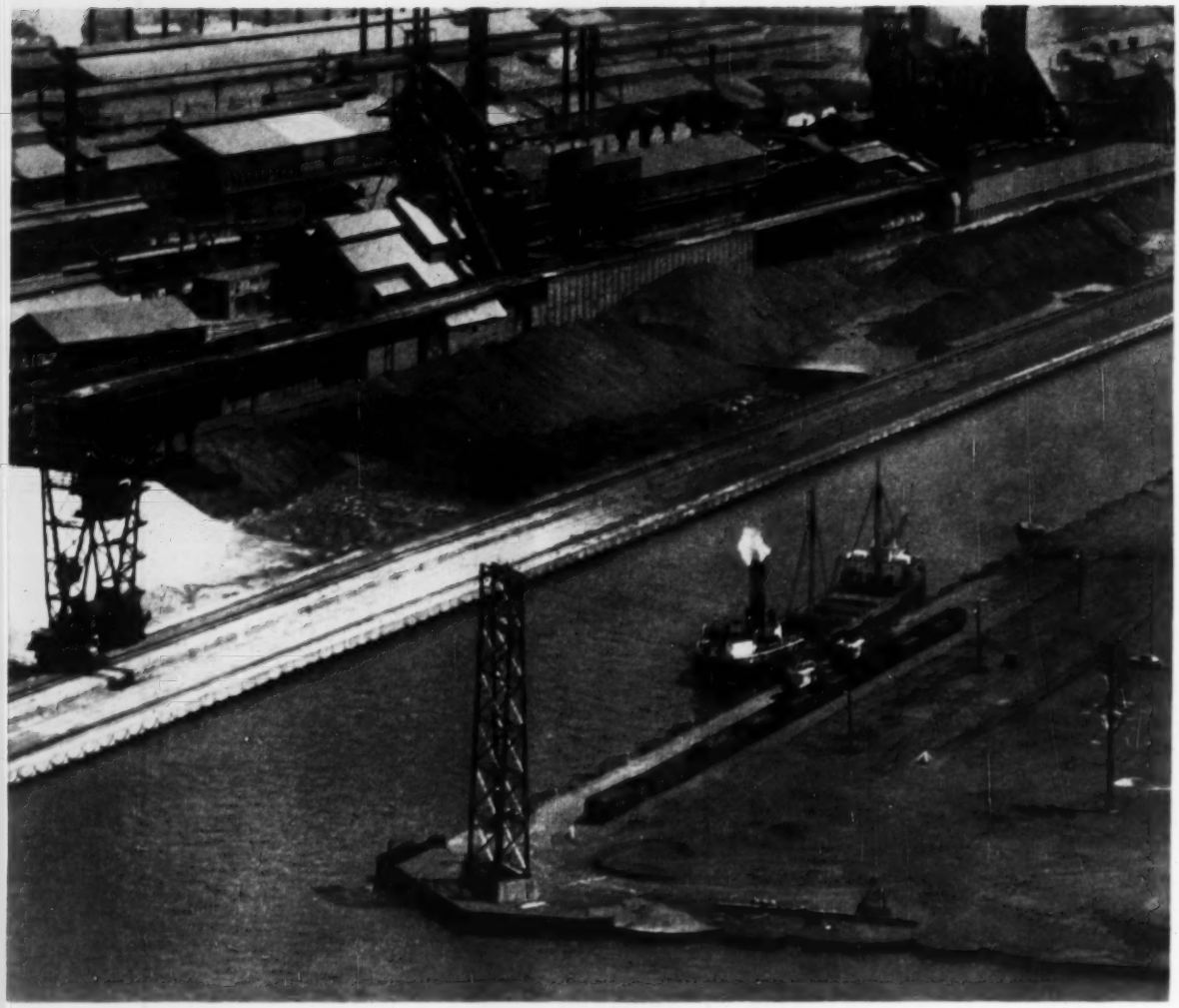
HOUSTON • LOS ANGELES • MEMPHIS • MINNEAPOLIS • NEW YORK • ORANGE, TEXAS • PHILADELPHIA • PITTSBURGH • PORTLAND, ORE. • ROANOKE • ST. LOUIS • SAN FRANCISCO • TRENTON
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

STEEL JOIST INSTITUTE MEMBER

# AMBRIDGE STEEL JOISTS

USS

UNITED STATES STEEL



# GREAT LAKES INDUSTRIAL CANAL DEEPENED TO ACCOMMODATE VESSELS OF GREATER DRAFT

The St. Lawrence Seaway will have an enormous impact on Great Lakes ports. Channels will be dredged deeper and docks rebuilt to handle the larger capacity ships that will eventually sail 2300 miles into the North American heartland.

The Seaway, expected to be completed in 1959, will add more than 8000 miles of new coastline to the United States and Canada. Much of this inland waterway is already navigable, and only dredging and deepening will be necessary to meet the Seaway's 27-ft channel specifications.

At Buffalo, the ship canal shown above was deepened from 23 ft to 29 ft. To accomplish this, a new steel-piling dock front had to be constructed, extending the walls down to the new canal bottom. Various types of dock wall construction were used, employing many thousands of tons of Bethlehem steel Sheet and H-Piling. The docks, which serve the plant for receiving raw materials and shipping finished steel products, have a length of nearly 10,000 ft.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

**BETHLEHEM STEEL**

BETHLEHEM STEEL

# Bids Asked—Low Bidders—Contracts Awarded—

*Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager*
*J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, S. N. NOLAN, Reports*
*J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.*

## NEW ENGLAND

### HEAVY CONSTRUCTION—LB & CA

▲ Denny's River Electric Co-operative, Inc., 8 Union St., Calais, Me., Owner Builds. $2,430,000, electrical system development, 135 mi. line and development 18 mi. transmission line, etc.; Washington Co., MAINE. Total proj.—complete 5-7 yrs., major part to be complete 2-3 yrs. CD 7/9/56.

▲ MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston.

J. F. White Contg. Co., P. O. Box 202, Westwood, Mass. CA $4,561,189, est. $5,483,641, Sect. 6, Southeast Expressway, Braintree and Weymouth. Bids Sept. 4. CD 9/10, under LB.

### BUILDINGS—LB & CA

▲ Nanni Bldg. Co., 1415 Atwood Ave., Johnston, R. I. LB $1,569,000 Bid No. 182, general base, Proj. No. HOS 4-0-1-2-3 and 4 GERIATICS BLDG. No. 2, R. I. State Hospital, HOWARD, R. I.; State R. I. and Prov. Plants, Div. Purchase, State House, Providence, R. I. Bids Sept. 25. CD 8/27.

▲ Dimeo Constr. Co., 511 Westminster St., Providence, R. I. LB $1,093,000, HOSPITAL addn., PROVIDENCE, R. I. Roger Williams General Hospital, 825 Chalkstone Ave., Providence, R. I. Bids Sept. 24. CD 9/19.

▲ E. Turgeon Constr. Co., Inc., 42 Weybosset St., Providence, R. I. CA $2,162,000, est. $2,000,000 DORMITORIES AND DINING ROOM, Waterman and Angell Sts. and Benefit and Prospect Sts., PROVIDENCE, R. I. Rhode Island School Design, 14 College St., Providence, R. I. Bids Aug. 23. CD 8/28, under LB.

## MIDDLE ATLANTIC

### BUILDINGS—BA

▲ N. J., Pennsauken—SCHOOL—BA 10/24—Pennsauken Twp. Bd. Educ., Pennsauken, Junior-Senior High School. $5,000,000. Plans deposit $15. Faint & D'Anastasio, 5521 Westfield Ave., engrs.-archts. CD 3/8/56.

### HEAVY CONSTRUCTION—LB & CA

▲ PENNSYLVANIA—Commonwealth of Pennsylvania, Dpt. Hys., Harrisburg.

Harrison Constr. Co., 1101 Western Ave., Pittsburgh, Pa., CA $2,776,612 divided by rein.-con., incl. 3 bridges, L.R. 747 (3) Sect. Erie Expressway, Girard Twp., Platea Boro, Erie Co. Bids Sept. 13, awarded Sept. 27. CD 9/17, under LB.

### BUILDINGS—LB & CA

▲ John Rosenblum, Inc., 1860 Broadway, New York 23, N. Y., LB $1,126,000, general contract, JUNIOR HIGH SCHOOL L42, Henry, Rapelyea and Coles Sts., BROOKLYN, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Sept. 25. CD 8/21.

▲ R. S. Noonan, Inc., 26 North Duke St., York, Pa., CA $1,268,033, 244 bed DORMITORY, CLINTON, N. Y. Bd. Trustees, Hamilton College, Clinton, N. Y. CD 8/12, under LB.

▲ Consolidated Contg. Co., 33 River St., Rye, N. Y., and McKay Constr. Co., Oneida, N. Y., CA $1,168,713, general contract and site work, Oneida HIGH SCHOOL, ONEIDA, N. Y. Bd. Educ., Oneida Consolidated School Dist., Oneida, N. Y. King & King, 344 S. Warren St., Syracuse, archts. CD 8/12, under LB.

▲ I. & O. A. Slutzky, Hunter, N. Y., CA $1,577,095, JUNIOR and SENIOR HIGH SCHOOL, SAUGERTIES, N. Y. Bd. Educ., Central School Dist. No. 1, Saugerties, N. Y. Sargent, Webster, Crenshaw & Folley, 2112 Erie Blvd. E., Syracuse, N. Y., archts. CD 8/12, under LB.

▲ Edward Robbins, Inc., 147 Fourth Ave., New York 3, N. Y., BA $1,055,000, three ELEMENTARY SCHOOLS, YORKTOWN, N. Y. Central School Dist. No. 1, Towns of Yorktown, Somers and Cortlland, Westchester County and Putnam Valley, Carmel and Phillipstown, Putnam Bd. Educ., Lakeland Highland High School, U.S. Route 6 Mohegan Lake (near Peekskill), N. Y. Bids Aug. 29. CD 9/16, under LB.

▲ John McShain Inc., 17 and Spring Garden Sts., Phila., Pa., CA Est. $2,500,000 general contract 3 RESIDENCE HALLS and DINING HALL, UNIVERSITY PARK, PA. Pennsylvania State University, University Park, Pa. CD 8/7, under LB.

▲ Skinker & Garrett, 2607 Connecticut Ave., N.W., Wash., D. C., LB $1,267,300 (6 bidders) MEMORIAL BLDG., Massachusetts Ave. and N. Capitol Sts., WASH., D. C. National Guard of Assoc. of U. S., 100 Indiana Ave. N.W., Wash., D. C. Bids Sept. 26. CD 9/10.

▲ Fairfield Constr. Co., c/o Joseph W. Remedie, 500 N. Jackson St., Wilmington, Del., Separate Contracts, $10,000,000. 500-unit RESIDENTIAL DEVELOPMENT "Fairfield" off New London Rd., NEWARK, DEL.

## SOUTH

### HEAVY CONSTRUCTION—LB & CA

▲ VIRGINIA—Commonwealth of Va., Dpt. Hys., 1221 E. Broad St., Richmond.

Va.—Ames & Webb, Inc., Box 4055, Norfolk, Zone 2, Va. CA $2,353,267. 2.47 mi. divided concrete by and underpass of Rte. 627, and interchange on U. S. 301, completing the Emporia Controlled-access bypass, Greensville Co.

Va.—Heckler Bros., Inc., Highland Springs, Va. CA $532,852. 0.98 mi. divided 4-lane hy. along Old Dominion Dr. (Rte. 309) from Nelson St. to Albemarle St. east of Rte. 120, U. S. Rte. 29-211, Arlington Co.

Va.—Moore Bros. Co., Inc., Box 258, Verona, Va. CA $1,306,232. 6.23 mi. parallel 24-ft. road and bridge over Reed Creek, from 1.74 mi. east of Wytheville to 0.77 mi. east of US 52, at Fort Chiswell, US Rte 11 (interstate) Wythe Co. Grand total $3,192,351. Bids Sept. 18. CD 9/23, under LB.

▲ WEST VIRGINIA—State Rd. Comm., Charleston, Zone 5. Bids opened 9/24.

V. N. Green & Co., Inc., and Charleston Constr. Co., 1640 4 Ave., Charleston, W. Va., LB $1,188,576, c. conc. 2.282 mi. Wellsburg relocation road. Proj. F 175(17), Contr. No. 1, Brooke Co. CD 9/17.

▲ Edward M. Fleming Constr. Co., 4121 N. W. 25 St., Miami, Fla., CA $1,000,000, sewage treatment plant, industrial waste treatment and water purification plant, WEST PALM BEACH, FLA. Pratt & Whitney Aircraft Operation, Box 2691, West Palm Beach, Fla. Bids Aug. 7. CD 9/20, under LB.

▲ MISSISSIPPI—State Hy. Dpt., T. C. Robbins, dir., Jackson.

Miss.—Gerald Smith Co., Inc., Jackson, Miss. CA $2,936,072, est. $3,860,000, grading, double base surf. tr., b. conc., c.conc. pavt., bridges and grade separation structures 7.466 mi. US Hy. 51 between Jackson and Crystal Springs, Proj. 1-091-2 (10), Hinds Co.

Miss.—Pigford-Noblin Constr. Co., Meridian, Miss. CA $1,791,093, est. $2,100,000, grading, grade separation structures, base, double base surf. tr., 5.611 mi. US Hy. 11 and 80 between Meridian and Alabama State Line, Proj. 1-094-2 (5), Lauderdale Co.

Miss.—J. B. Michael & Co., Inc., 1201 Heywood, Memphis, Tenn. CA $2,190,519, est. $2,460,000, grading, bridges, grade separation structures, base, double base surf. treatment 7.526 mi. US Hy. 51 between Miss. Hy. No. 568 and 24, Proj. I 091-1 (5), Pike Co. Grand total $6,917,684. Bids Sept. 24. CD 9/16.

▲† Southern Builders, Inc., Box 1815, Shreveport, La., CA $1,050,000, Consolidated Bachelor Officers' Quarters, Naval Auxiliary Air Station, NBy-11282, Spec. 1128-57, NEW IBERIA, LA. Bureau Yards & Docks, Dpt. Navy, Bldg. No. 16, U. S. Naval Station, New Orleans, La. Bids June 26. CD 7/17, under LB.

### BUILDINGS—LB & CA

▲ Kenneth Smith Constr. Co., 219 Magnolia Ave., Daytona Beach, Fla., LB $1,671,737. Fla 8-CH-20 (D), 272-unit COLLEGE HOUSING, near Radio and Archer Rd., GAINESVILLE, FLA. State Bd. Control, University of Florida, Administration Bldg., Gainesville, Fla. Bids Sept. 18. CD 8/23.

▲ J. A. Jones Constr. Co., 209 W. 4th Charlotte, N. C., CA $25,000,000 PLANT to produce Creslan, (a textile fiber). PENSACOLA, FLA. American Cynamid Co., 30 Rockefeller Plaza, New York, N. Y. CD 8/30/56.

## MIDDLE WEST

### BUILDINGS—BA

▲ O., Painesville—HOSPITAL—BA 12/4—Lake County Memorial Hospital, constr. hospital addn. $2,250,000. Conrad & Simpson, Hanna Bldg., Cleveland, Zone 15, archts. CD 2/2/56.

### HEAVY CONSTRUCTION—LB & CA

▲ OHIO—State Dpt. Hys., Columbus, Zone 15. Bids opened 9/17.

O.—J. A. Jones Constr. Co., P. O. Box 18, Berlin Heights, O., LB $2,970,932, est. $3,197,500 (11 bidders), Type T-71 and structures, 6.295 mi. SR 1-11.50, I-1105(9), Proj. 452, Delaware Co.

O.—Nick Cenci & Sons, Inc., 844 N. Cassady Ave., Columbus, O., LB $1,584,040, est. $1,719,900 (8 bidders), Type T-71 and structure 1.371 mi. US R 33-14.35, U-376 (2), City of Lancaster, Proj. 453, Fairfield Co. CD 8/30.

▲ American Bridge Div., U. S. Steel Corp., 9255 General Motors Bldg., Detroit, Mich. CA $3,353,306, aerial lift bridge over South Canal of Soo Locks, Sault Ste. Marie, MICHIGAN. Sault Ste. Marie Bridge Co., Soo Line R.R. Co., First Natl. Soo Line Bldg., Minneapolis 2, Minn. Bids Aug. 2. CD 8/9, under LB.

### BUILDINGS—LB & CA

▲ Jim Eisch Constr. Co., 6023 Superior Ave., CA $1,115,432, HIGH SCHOOL in ROCKY RIVER, O. Lutheran Bd. Educ., 2648 Prospect Ave., Cleveland 15, O. Bids Aug. 8. CD 8/29, under LB.

▲ Henry J. Spieker Co., 1418 Elm St., Toledo, O. CA Est. $3,000,000. 2 bldgs., 35,000 sq. ft. ENGINEERING and RESEARCH FACILITY, adjacent to present plant, TOLEDO, O. Champion Spark Plug Co., 900 Upton, Toledo, O. Bellman-Gillett Richards, 518 Jefferson St., Toledo, O., archts.

▲ Bulley & Andrews, 1755 W. Armitage Ave., Chicago, Ill. CA $3,000,000, OFFICE BLDG. addn., 20 N. Wacker Dr., CHICAGO, ILL. 20 N. Wacker Dr. Corp., 20 N. Wacker Dr., Chicago, Ill. Childs & Smith, 20 N. Wacker Dr., Chicago, Ill., archts.

▲ Practical Home Builders, Inc., 13440 W. 7 Mile Rd., Detroit, Mich., Owner Builds. $1,170,000. 80 brick HOMES, Maple Heights, CLAWSON, MICH.

▲ Rose-Hill Builders, 13324 West 7 Mile Rd., Detroit, Mich. CA Est. $4,000,000. 200 brick HOMES "Tudor Village", Venoy Rd., Cherry Hill and Avondale Ave., NANKIN, MICH. Bert Gordon Realty Co., 18996 Schaefer St., Detroit, Mich.

▲ H. F. Campbell Constr. Co., 9101 Michigan Ave., Detroit, Mich. CA $1,430,000. PLANT OFFICE, Exit 14-Mile Road, "OVAL" OAK, MICH. Bentley Machine Co., 459 Fern St., Ferndale, Mich.

## WEST OF MISSISSIPPI

### BUILDINGS—BA

▲ Mo., Maryville—CLASSROOM—BA 10/23. Northwest Missouri State College, Maryville, 2 story, ground floor L-shaped 66 ft. with 210 ft. extension and 235 ft. (44,500 sq. ft. brick classroom bldg. $1,000,000. Fix & Wood post $50. Emil G. Bayer, 20 W. 9 St., Kansas City, Mo., archt. Raymond Hentschel, Terminal Warehouse Bldg., South St. Joseph, asso. archt. CD 12/22/54.

### BUILDINGS—SLC

▲ Mo., Kansas City—MOTEL—Prom Investment Co., c/o Abe Fedda, 7500 E. 12 St., Kansas City, Mo. soon lets contract 6 story, brick, concrete block, rein.-con. motel. $1,000,000. Wiedberg, Raymond &

### PROJECTS COVERED

#### By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

#### By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

| | |
|---|---|
| New England | Middle West |
| Middle Atlantic | West of Mississippi |
| South | Far West |
| PROPOSED WORK | |
| Water Supply | Public Buildings |
| Sewers, Waste Disposal | Mass Housing |
| Bridges | Commercial Buildings |
| Streets & Roads | Industrial Buildings |
| Earthwork, Waterways | Unclassified |

#### In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

#### Symbols and Abbreviations Include:

| | |
|---|---|
| † | Federal Government |
| ▲ | Project of $1,000,000 or over. |
| ENR | Engineering News-Record |
| CD | Construction Daily |

For additional reports see Construction Daily.

# CONNORS
## Reinforcing Bars

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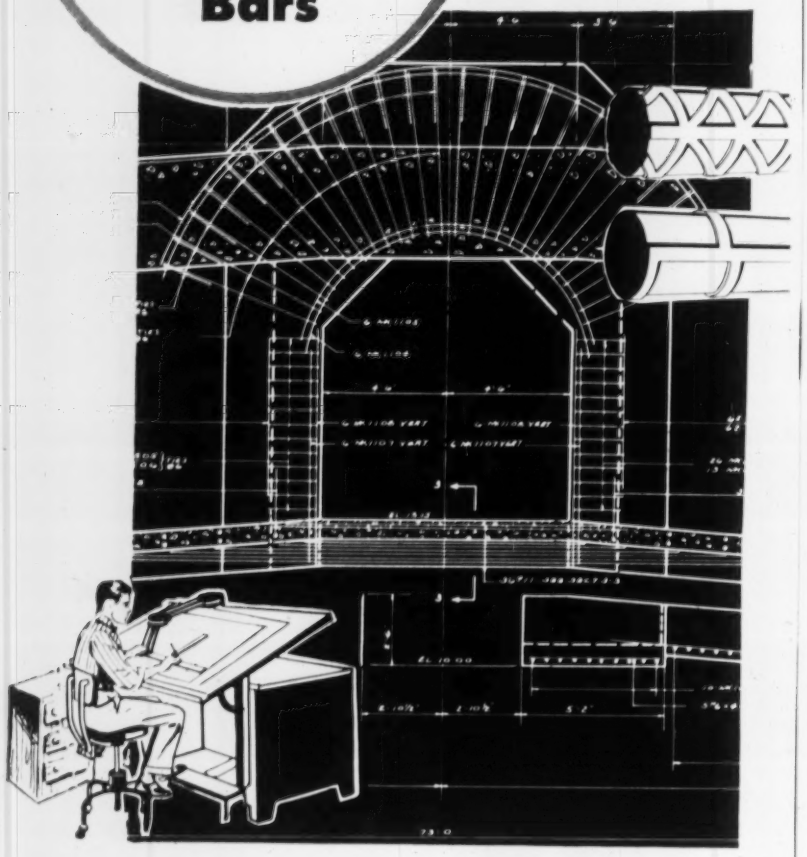

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H. K. PORTER COMPANY, INC.
CONNORS STEEL DIVISION


Venable, Chisca Hotel, Memphis, Tenn., archts. Manuel Morris, 724 Railway Exchange Bldg., Kansas City, Mo., local archt. CD 9/12.

### HEAVY CONSTRUCTION—LB & CA

▲† **U. S. Eng. Co.**, 914 Campbell St., Kansas City, Mo. LB $1,084,000, air-conditioning U. S. Post Office, 315 W. Pershing Rd., Proj. D&C 2020, PB-JO-7205, KANSAS CITY, MO. General Services Admin., P. Bldgs. Serv., 2306 Bannister Rd., Kansas City, Mo. Wm. L. Cassell, 912 Baltimore Ave., Kansas City, Mo., engr.

▲ **River Constr. Corp.**, 4837 W. Freeway, Fort Worth, Tex. CA $5,190,000, 173 mi. 26 in. gas pipe line from near Fritch, Tex. and Wheeler, Gray and Carson Counties, Tex., thru Washita and Beckham Counties, Okla. to Kiowa Co., Okla. near Roosevelt, TEXAS AND OKLAHOMA. Natural Gas Pipeline Co. of America, 122 Michigan St., Chicago, Zone 3, Ill. CD 6/17/55.

**H. B. Zachry Co., Constr. Div.**, Box 10188, San Antonio, Tex. CA $2,165,000, 85 mi. 26 in. gas pipe line from near Ardmore, Carter Co. thru Stephens, Grady, Caddo Counties to Kiowa County near Roosevelt, (Texas-Oklahoma).

### BUILDINGS—LB & CA

▲ **P. L. Caron**, 815 4 St., Des Moines, CA $1,175,194, general contract Louis C. Kurtz JUNIOR HIGH SCHOOL, DES MOINES, IOWA. Bd. Educ., Des Moines, Iowa. Bids Sept. 17. CD 8/27.

▲ **Estrin Constr. Co.**, 828 E. 9 St., Kansas City, Mo., CA Est. $1,400,000. BOWLING ALLEY and RECREATION CENTER, NORTH KANSAS CITY, MO. North Kansas City Development Co., 21 and Burlington Sts., North Kansas City, Mo. Albert C. Martin & Assocs., 333 S. Beaudry St., Los Angeles, Calif., archts.

▲ **Ernest Vermillion**, 438 W. 67 Terrace, Kansas City, Mo., CA $1,672,429, HIGH SCHOOL, RUSKIN HEIGHTS, MO. Consolidated Dist. No. 1, R.F.D., Hickman Mills, Mo. Frangkiser & Hutchens, 7926 State Line, Kansas City, Mo., archts.

## FAR WEST

### BUILDINGS—BA

▲ **Ore., Pendleton**—SCHOOL—BA 10/31—Pendleton School Dist., senior high school, $2,000,000. Culler, Gail, Martell & Norrie, Realty Bldg., Spokane, Wash., archt. CD 5/31, under LB.

### HEAVY CONSTRUCTION—LB & CA

▲† **J. W. Briggs**, Box 283, Bend, Ore. CA $1,527,020, LB (14 bidders), relocating forest service west side road, dam to Annie Creek, Cougar Reservoir, Lane Co., CIVENG-35-026-58-20, OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Sept. 12, awarded Sept. 25. CD 9/2.

▲† **E. A. Irish**, 2944 Gleneden, Los Angeles, Calif. LB $5,263,542, est. $4,250,349. Schedules 1 thru 9, structures and concrete or steel pipe lines and access roads, for Casitas Gravity Main Oakview and other mains, Ventura River Proj., SC 4956, near Ventura, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Oak View, Calif. Bids Sept. 24. CD 8/15.

### BUILDINGS—LB & CA

▲ **Hoffman Constr. Co.**, 715 S. W. Columbia St., Portland, Ore. CA $3,500,000, 5 story BANK addn., PORTLAND, ORE. First National Bank, 404 S. W. 6th Ave., Portland, Ore. CD 6/11. Awarded Sept. 23.

▲ **Tom E. Norcross**, 6053 Atlantic Ave., Long Beach, Calif. LB $1,337,300. (5 bidders) general work, 100,000 sq. ft. PHYSICAL EDUCATION BLDG. at Los Angeles State College of Applied Arts & Sciences, San Bernardino Freeway Campus, W.O. 3719GC-38, LOS ANGELES, CALIF. State Div. Architecture, 1100 S. Grand Ave., Los Angeles, Calif. Bids Sept. 25. CD 8/26.

## CANADA

### BUILDINGS—LB & CA

▲ **Geo. A. Crain & Sons Ltd.**, 555 Cambridge St., Ottawa, Ont., LB $4,569,522 (8 bidders) 7 story, rein.-con., brick, stone HOSPITAL exten., OTTAWA, ONT. Ottawa Civic Hospital Bd., Carling Ave., Ottawa, Ont. Bids Sept. 12. CD 8/14.

▲ **Damien Boileau Ltee.**, 705 Beaumont St., Montreal, Que., CA Est. $10,000,000. 14 story, 170x192x44 ft. HOSPITAL extension, incl. nurses' residence, laundry and heating plant, MONTREAL, QUE. Bd. Governors of St. Luke's Hospital, Dorchester and St. Denis Sts., Montreal, Que. Awarded Sept. 18.

▲ **Turcot & Lefort**, 1007 Rousselliere St. Pointe aux Trembles, Que., CA Est. $2,500,000. HOUSING, between Victoria and Forsyth Aves., Pointe Aux Trembles, MONTREAL, QUE. Awarded Sept. 18.

# PROPOSED PROJECTS

## WATER SUPPLY

▲ **Ont., Toronto**—Municipality of Metropolitan Toronto, 67 Adelaide St. E., 28,000 ft. 36 in. water main, Wilson Heights Blvd. and Dufferin St., $2,000,000. M. M. Dillon & Co., Ltd., 69 Eglinton Ave E., consult. engrs.; 36 in. water main along Wilson Ave to Armour Heights, $100,000, Marshall, Macklin & Monaghan, 1480 Don Mills Rd., consult. engrs.; 30 in. steel main, Eglinton Pumping Station to Eglinton Ave. and

Don Mills Rd. and northerly on Don Mills Rd., up to Lawrence Ave. and Leslie St. to Leslie elevated tank, 24 in. c. i. main with mechanical joints and a 24 c. i. main from Eglinton pumping station to Warden Ave. and south to Warden Ave. elevated tank, $500,000. Proctor & Redfern, 11 Jordan St., consult. engrs.; 48 in. water main, from John St. Pumping Station to Rosehill reservoir, over $50,000. James F. MacLaren Assoc., 321 Bloor St., consult. engrs. CD 9/3/54.

## SEWERS, WASTE DISPOSAL

▲ Calif., Montecito—Montecito Sanitary Dist., E. Valley Rd., Santa Barbara, collection sys. and treatment plant, $2,500,000. Penfield & Smith, 111 E. Victoria St., Santa Barbara, and Clyde C. Kennedy, 604 Mission Rd., San Francisco, consult. engrs.

▲ Mich., Saginaw—City, C. A. Miller, mgr., City Hall, $3,900,000 bond election Nov. 7, relief sewers. Carl T. Dust, city engr.

▲ Mo., St. Joseph—Bd. P. Wks., City Hall, $6,500,000 bond election Nov. 12, sewerage sys. and treatment plant imprvs., interceptor sewers and sewer extens.

▲ Tex., San Antonio—City, City Hall, Steve Matthews mgr., bond election Oct. 22, sanitary sewers, $3,000,000. CD 9/19/52.

## BRIDGES

▲ Ill., Chicago—City, City Hall, Dearborn Street bridge over Chicago River, $5,400,000; viaduct on South Damen between 37th and 47th Sts. $7,800,000; reconstr. and redecking West Randolph bridge over South Branch of Chicago River, $250,000. CD 6/10.

## STREETS AND ROADS

▲ Mo., Jefferson City—City, City Hall, $2,875,000 bond election Nov. 5, Prop. No. 1, right-of-ways; street widening, city extens. and trafficways, and off-street parking lots.

▲ UTAH—State Rd. Comn., State Capitol, Salt Lake City,

Davis Co.—6 lane divided hy. through Davis Co. west of Bountiful, incl. 3 interchanges and 6 grade separations, $7,300,000.

Kane Co.—road to Glen Canyon Dam area, A 17.4 mi. section of road from Kane to Utah-Arizona State Line $2,250,000.

## EARTHWORK, WATERWAYS

▲† Kansas—U. S. Eng., 1800 Federal Office Bldg., 911 Walnut St., Kansas City 6, Mo., raising Kansas City Terminal Ry. bridge 8 ft. and changing elevation of 11 mi. railroad track along Kaw River, to complete Kansas City Flood Protection Project. $3,000,000. Swerdrup & Parcel, Inc., 915 Olive St., St. Louis, Mo., consult. engr.

▲ Mich., Detroit—Port of Detroit Comn., Troy H. Browning, chn., bond election Nov. 5, port development, Jefferson, Scotten, West Grand Blvd., 27 acre site, $9,500,000. Harley, Ellington & Day, Inc., 153 E. Elizabeth, Detroit, Zone 1, archt. CD 6/24.

▲ Tex., Baytown—City, drainage, $1,550,000.

▲ Tex., San Antonio—City, Steve Matthews, mgr., bond election Oct. 22, drainage, open and closed $12,000,000 (a 7 year program). CD 12/20/51.

## AIRPORTS

▲† Ariz., Tucson—AIR FORCE BASE—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., maintenance facilities, supply facilities, troop housing, community facilities and land acquisiton, Davis-Monthan Air Force Base. $2,361,000. CD 6/15/54.

▲ Mo., St. Louis—AIRPORT IMPRVS.—City, Frank Kriz, acting pres. Bd. P. Service, 304 City Hall, 12 Blvd. and Market St., Zone 3, plans by Hellmuth, Obata & Kassabaum, 315 N. 10 St., Zone 1, imprv. Lambert-St. Louis Municipal Airport on Natural Bridge Rd., incl. (1) exten. two concourses of finger ramps of new terminal bldg. $800,000. (2) fourth domed-unit addn. to building, $1,700,000. Wm. C. E. Becker, 411 N. 7 St., Zone 1, structural engr. Ferriss & Hamlin, 1706 Olive St., Zone 3, mech. and electric plans engrs. CD 7/25.

▲† Va., Oceana—NAVAL AIR STATION—Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, naval air station, operational and training facilities, utilities and ground imprvs. and land acquisition. $6,975,000. CD 8/28/56.

## PUBLIC BUILDINGS

▲ Calif., Bakersfield—SCHOOL—Kern County Union High School & Junior High College Dist., plans by Alford, Thomas & Leydenfrost, 602 Haberfelde Bldg., 61,800 sq. ft., concrete block Burroughs High School, $1,500,000. Hillman & Dowell, 816 W. 5th St., Los Angeles, consult. engrs. Bids asked appro. Feb. 1958. CD 5/23.

▲ Calif., Los Angeles—SCHOOL—Los Angeles Bd. Educ., 1425 S. San Pedro St., plans by Charles Matcham, Stewart S. Granger & Assocs., 621 S. Hope St., Los Angeles, Senior High School in Northwest San Fernando Valley. $5,000,000. Bids in early November. CD 12/26.

▲ Calif., Los Angeles—SCHOOL—Los Angeles Bd. Educ., 1425 S. San Pedro St., plans by Bowen & Bowen and A. S. Nibecker, Jr., archts.-consult. engrs., 2873 Colorado St., Dodson Junior High School, San Pedro. $2,000,000. CD 4/8/55.


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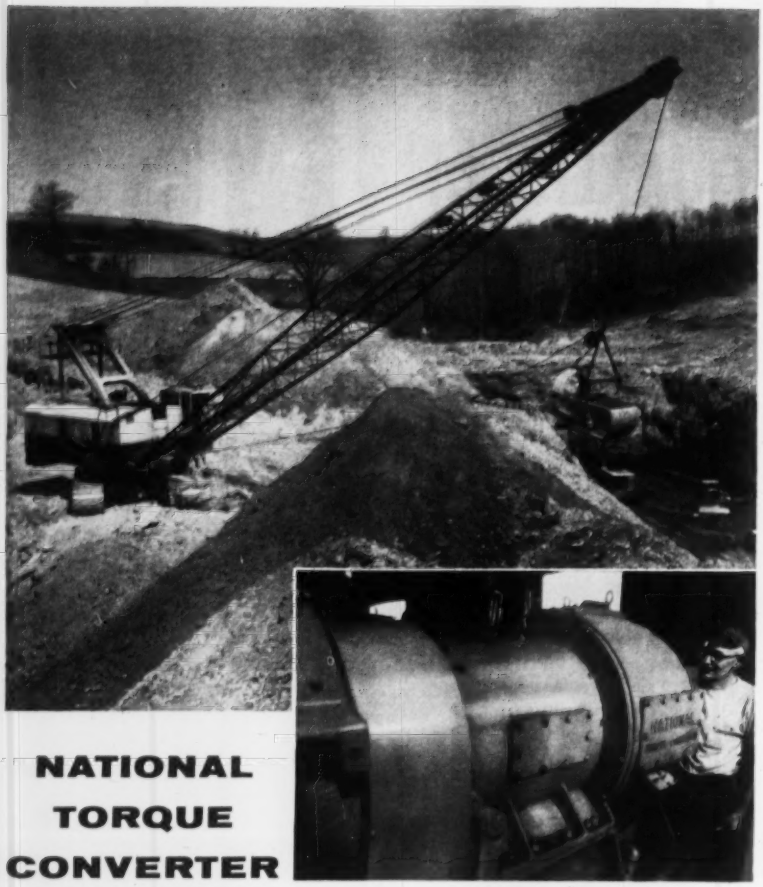

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▲ **Calif., Los Angeles**—ENGINEERING—University of California, 405 Hilgard Ave., Los Angeles, plans by Stanton & Stockwell, 627 S. Carondelet St., 6 story, rein.-con. Engineering Unit No. 3, to match Engineering Bldgs. 1 and 2, $6,000,000.

▲† **Calif., San Diego**—NAVAL TRAINING CENTER—Dpt. Navy, San Diego, Naval Training Center, troop housing, service school, $1,613,000.

▲ **Calif., Santa Barbara**—SCHOOL—Santa Barbara Bd. Educ., Santa Barbara, plans by Howell Arrendt, Mosher & Grant, 116 E. Sola St., San Marcos Junior High School, $2,000,000. CD 2/12.

▲ **Conn., Meriden**—HOUSING—Meriden Housing Auth., 65 Broadvale Rd., plans by William H. MacKay, 137 Colony St., low-rental housing, Court St., $2,500,000. Schilling & Goldbecker, 181 Trumbull St., New Haven, consult. engrs. CD 1/17/55.

▲ **Conn., New Britain**—SCHOOL—Town plans by Willard Wilkins, 945 Asylum Ave., Hartford, Southwestern Junior High School, Steele St. $1,875,000. Henri B. VanZelm & Assoc., 1007 Farmington Ave. W., Hartford, consult. engrs. CD 8/7.

▲ **Fla., Okeechobee**—INDUSTRIAL SCHOOL—Bd. Comrs. State Institutions, Tallahassee, plans by Robert H. Maybin, engr.-archt., 1719 N. Monroe St., Industrial School For Boys, $3,750,000.

▲ **Ill., Hinsdale**—SCHOOL—Hinsdale Twp. High School, 55th and Grant Sts., plans by Fugard Burt Wilkinson & Orth, 520 N. Michigan Ave., Chicago, 2 story, brick, high school addn., swimming pool and auditorium, 55th and Grant Sts. $2,430,000.

▲ **Me., Augusta**—ACUTE ADMISSION AND TREATMENT, etc.—State, Dpt. Institutional Service, State House, Acute Admission and Treatment Bldg., $1,500,000; 3 story, 50x200 ft. General Storage Warehouse, $350,000. Above work at State Hospital. Constr. 1958.

▲ **Mich., Parchment**—SCHOOLS—Bd. Educ., Parchment, defeated bonds Sept. 10, schools, $1,974,000. Stapert, Pratt, Bulthuis, Sprau & Crothers, 410 W. Walnut St., Kalamazoo, archts. CD 8/20.

▲ **Mich., Saginaw**—SCHOOLS—Bd. Educ. Buena Vista School Dist. 9, plans by Frantz & Spence, 326 N. Washington St., high school and elementary school, $2,000,000. Constr. 1958. CD 12/7.

▲ **Mo., Springfield**—POWER PLANT—City, E. W. Bell, purch. agt. City Utilities Bd., 301 E. Central St., $8,487,000, bond election Oct. 15, furnish, install third unit, 22,000 kw. to municipal power plant. Burns & McDonnell Eng. Co., 95th & Troost Sts., and P. O. Box 7088, Kansas City, Mo., consult. engrs.

▲ **Neb., Hallam**—REACTOR—Consumers Pub. Power Dist. of Nebraska, 1452 25th Ave., Columbus, 75,000 kw. sodium cooled graphite moderated reactor at Nuclear power plant, $29,000,000. Contract signed with AEC. North American Aviation, Inc., 12241 Lakewood Blvd., Downey, Calif., consult. engr. CD 11/4/55, under Nebraska.

▲ **N. J., Jersey City**—CIVIC CENTER—City, City Hall, civic center, consisting of auditorium, library, museums, etc. for proposed site of 7 acres possibly in Lincoln Park. $3,500,000, To be started in 2 or 2½ years.

▲ **N. Y., East Rockaway**—SCHOOL—Bd. Educ. addn. to East Rockaway High School, $1,000,000; Rhame School addn., $600,000; modernization of Center School, $250,000.

▲ **N. Y., New York**—SCHOOL—Bd. Educ., 45-12 Crescent St., Long Island City, plans by William F. R. Ballard, 123 E. 77th St., Proj. E-774, P. S. 132, vicinity of Washington Ave. and East 168th St. $2,850,000. CD 5/20/57.

▲ **N. C., Greensboro**—COLISEUM, etc.—Memorial Coliseum Comm., City Hall, plans by McMinn-Norfleet & Wicker, 2828 Lawndale Dr., coliseum, sports arena type, and town hall, $4,000,000. Geo. B. Rottman, 2534½ N. Green St., mech. engr. Walter Primats, Asheboro, structural engr. John Bolen, 109 W. 3 St., Charlotte, electrical engr. Bids about Nov. 15. CD 10/30/46.

▲† **O., Columbus**—BULK MAILING—General Services Admin., General Services Bldg., Wash. 25, D. C., bulk mailing building, for U. S. Post Office Dpt. $10,000,000.

▲ **O., Columbus**—SCHOOL—South-Western School Dist., Grove City, bond election Jan. 28, high school and one or two new elementary schools, $2,800,000. CD 8/13.

▲ **Pa., Logan Twp. (P. O. Altoona R. D.)**—SCHOOL—Logan Area Joint School Dist., Greenwood, Altoona, high school, $1,558,800.

▲ **Pa., Pittsburgh**—DIAGNOSTIC CLINIC—Allegheny General Hospital, 320 E. North Ave., plans by Schell & Deeter, 36 Gateway Center, Pittsburgh, 2-5 story wings, plus pub. health center, diagnostic clinic, modernization and expansion and addns. $4,800,000. Ted. Rockwell, Hardy & Hayes Bldg., Pittsburgh 19, Pa., consult.—engrs.

▲ **Pa., Pittsburgh**—ARENA-AUDITORIUM—City, Zone 19, plans by Mitchell & Ritchey, Plaza Bldg., Zone 19, arena-auditorium, with circular retractable roof, $16,000,000.

▲ **Pa., West Mifflin Bros. (P. O. Homestead)**—SCHOOL—West Mifflin School Bd., Homestead, high school, $2,175,000.

▲† **Tex., Daingerfield**—ORDANCE AEROPHYSICS LABORATORY—88th Naval Dist., Dpt. Navy, New Orleans (Algiers) La., ordnance aerophysics laboratory, research and development facilities, $2,649,000.

(Continued on page 65)

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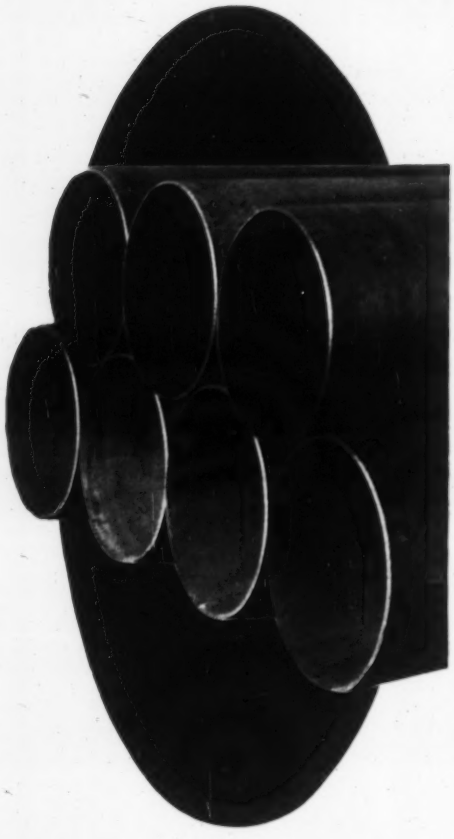

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(Continued from page 62)

▲ **Tex., San Antonio**—POLICE—City, Steve Matthews, mgr., bond election Oct. 22, police bldg. $2,750,000. CD 12/5/55.

▲ **Wis., Wausau**—SCHOOL—Bd. Educ. plans by Warren Holmes Co., Assoc.-Foster & Yasko, 407½ Scott St., Wausau, Wis., 2200 Mich. Nat'l. Bank Bldg., Lansing, Mich., archt., 154,00 sq. ft. Junior High School. $2,500,000.

▲ **Wyo., Laramie**—SCHOOL—Bd. Educ., School Dist., No. 1, 309 S. 9 St., high school. $1,400,000. Hitchcock & Hitchcock, 107 S. 5 Ave., consult. engrs. CD 9/26.

▲ **British Columbia**—GENERATING PLANT—British Columbia Power Corp. Ltd., 425 Carrall St., Vancouver, 900,000 kw thermal generating plant in Greater Vancouver area. $100,000,000. May replace Mica Creek Project. CD 3/9/54, under Earthwork, Waterways.

## COMMERCIAL BUILDINGS

▲ **Calif., Long Beach**—WORLD TRADE—Commercial Services International, c/o James R. Friend, archt., 708 Kress Bldg., 10 story, 500,000 sq. ft., World Trade Bldg. $20,000,000.

▲ **Calif., Palo Alto**—ELECTRONICS LABORATORY—Bd. Trustees, Stanford University, Palo Alto, plans by Gardner Dailey, 442 Post St., San Francisco, 8,400 sq. ft. electronics lab addn., 9,000 sq. ft., applied electronics lab, 65,000 sq. ft. physics bldg., 185,000 sq. ft., rein.-con., 5 other bldgs. for science and research. $10,000,000. CD 1/7.

▲ **D. C., Wash.**—OFFICE—D. F. Antonelli Jr. & Assocs., 1719 Desales St. N. W., plans by Milton J. Prassas & Assocs., 5915 Massachusetts Ave., Bethesda, Md., office, 23 and "E" Sts. N. W. $3,000,000.

▲ **Minn., St. Paul**—HOSPITAL, etc.—Bethesda Hospital, K. Holmquist, admin., 559 Capitol Blvd., hospital wing, $1,000,000, home for invalids, $2,000,000 in 500-block Capitol Blvd. Magney, Tusler & Setter, 303 Roanoke Bldg., Minneapolis, consult. engrs. Constr. 1958 or 1959. CD 9/19/56.

▲ **N. J., Newark**—OFFICE—David Cronheim, 39 Branford Place, 20 story office bldg. at sect. of Broad and Clinton Sts. $6,000,000.

▲ **N. M., Albuquerque**—OFFICE—Bank of New Mexico, 3022 Central Ave. S.E., 14 story office bldg. in downtown area. $5,000,000.

▲ **N. C., Rocky Mount**—COLLEGE—N. C. Wesleyan College, W. J. Smith, bus. mgr., college bldgs. $4,000,000. Lashmit, James, Brown & Pollock, 856 W. Four & One-Half St., Winston-Salem, engrs. CD 2/5.

▲ **N. C., Fayetteville**—COLLEGE—Methodist College, Terry Sanford, chm. Bd. Trustees, plans by Stevens & Wilkinson, 157 Luckie N.W., Atlanta, Ga., 4-year co-educational college, 1 mi. from here. $5,000,000. CD 4/11/56.

▲ **O., Cincinnati**—APARTMENT—Syndicate headed by John F. Deye, 2100 Patterson St., plans by R. Carl Freund, 2212 Victory Parkway, 12 story, 96-unit apartment air-conditioned, Victory Parkway and Reading Rd. $2,500,000.

▲ **O., Delaware**—SEMINARY—Methodist Church, Falls Bldg., Nashville, Tenn., plans by Dalton & Dalton, The Arcade, Cleveland, seminary. $4,000,000. CD 3/11.

▲ **O., Hampden**—HOMES—Marvin Helf, Inc., 10001 Carnegie Ave., Cleveland, Zone 6, plans by Louis J. Rotman, 31715 Vine St., Wickliffe, 300 homes, Kyle Rd. off Rte. 6 in Hampden Twp. $3,000,000.

▲ **O., Oberlin**—SCIENCE, etc.—Oberlin College, Oberlin, plans by Skidmore, Owings & Merrill, 425 Park Ave., New York, N. Y., Science Bldg., $1,680,000; plans by Yanasaki, Leinweber & Assocs., 103 W. 5th Rd., Royal Oak, Mich., Conservatory of Music Bldg., $2,250,000; plans by Moore & Hutchings, 215 E. 37th St., New York, N. Y., King Memorial Bldg. for science and humanities and social studies; plans by Harrison & Abramovitz, 605 5th Ave., New York, N. Y. and Eldredge Snyder, 101 Park Ave., New York, N. Y., addn. to Sophronia-Brooks auditorium for speech dpt. CD 6/18.

▲ **Ont., Toronto**—RESIDENTIAL DEVELOPMENT—Sunnybrook Development Ltd., c/o realtor, residential development, nineteen 100 x 200 ft. lots, east of Bayview Ave., south of Lawrence Ave. $1,500,000.

## INDUSTRIAL BUILDINGS

▲ **Ky., Louisville**—RESEARCH CENTER, etc.—Reynolds Metals Co., Reynolds Bldg., Richmond, Va., will not construct research center and office, on Watterson Expressway. $6,000,000. CD 5/1.

▲ **Ont., Brampton**—PLANT—Strippit Tool & Machine Ltd., Brampton, subsidiary of Houdaille Industries, Inc., 1280 Main St., Buffalo, N. Y., U. S. A., plant. $2,500,000.

▲ **Ont., Maitland**—PLANT—Du Pont Co. of Canada 1956) Ltd., 1135 Beaver Hall Hill, Montreal, Que., boiler plant addns. $3,000,000.

## UNCLASSIFIED

▲ **Mo., St. Louis**—UNDERGROUND CABLE SYSTEM—City, Frank Eriz, acting pres. Bd. P. Service, 304 City Hall, 12th Blvd. & Market St., extensions and changes to underground cable system of fire and police telegraph system to tie in with new headquarters now under constr. in Forest Park. $1,520,000. CD 3/7/46.


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For supreme satisfaction use LOCKTITE with imported CASTELL 9030 lead in 19 degrees, the same quality lead that made CASTELL wood pencil famous in every civilized country in the world. Call your Dealer today.

**A.W.FABER - CASTELL**
PENCIL COMPANY INC. NEWARK 3, N. J.

CUTTING WIRE ROPE IS EASY the MORSE-STARRETT way

**FAST** Especially designed cutting blade and dies assures fast cutting action. The hammer principle eliminates any special skill requirements.

**CLEAN** Wire rope ends are cut smooth and clean for perfect threading or splicing.

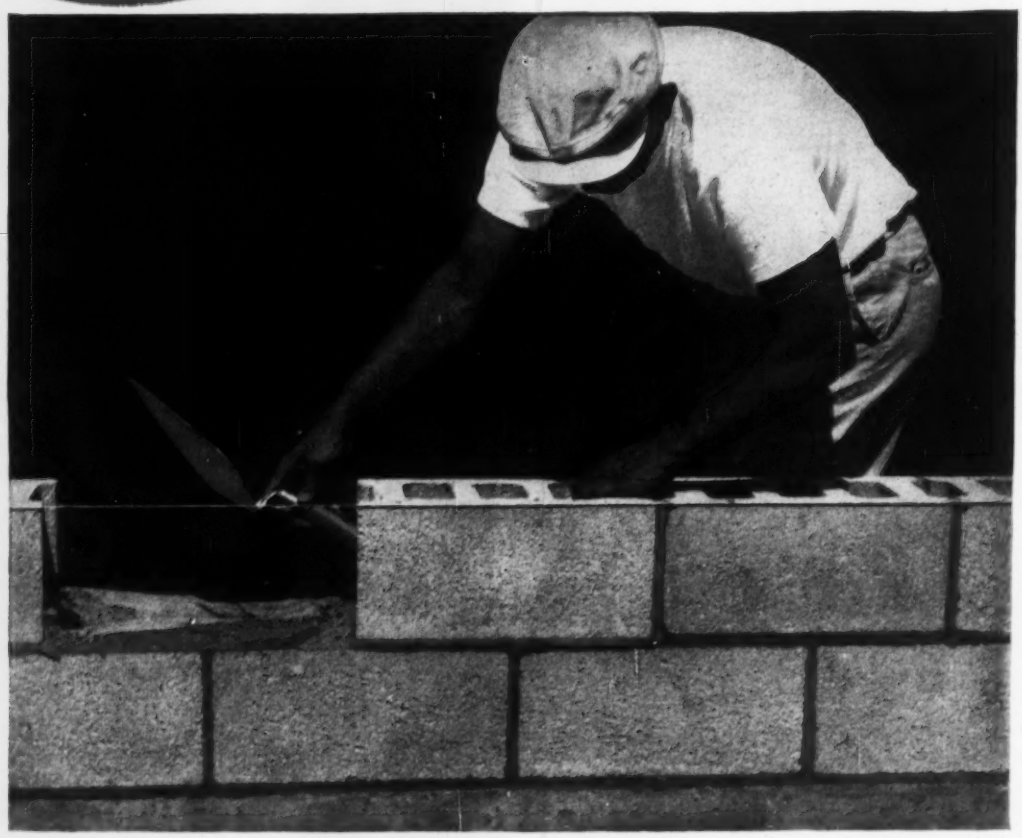
**SAFE** The enclosed cutting blade locked in the body of the cutter assures perfect safety.

**PORTABLE** Models for tool kit or stationary operation. With cutting capacities up to: 1 inch, 1-1/16 inch, 1-1/2 inch.

SEE YOUR DEALER OR WRITE DEPT. "B"
MORSE-STARRETT PRODUCTS CO.
1204 - 49th AVENUE, OAKLAND 1, CALIFORNIA

# BRIXMENT

## *Better Mortar for Blocks*

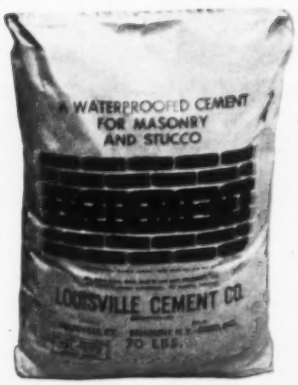


## STAYS WORKABLE LONGER

To get a good bond between concrete blocks, the bricklayer must shift and adjust each block to its final position, before the mortar has stiffened.

Brixment makes it easier for the bricklayer to do this. Brixment mortar stays plastic longer in the wall because it has high water-retaining capacity, which provides greater resistance to the suction of the block. This gives the bricklayer more time to adjust and shift the block to its final position, while the mortar is still plastic enough to form a good, tight bond.

**Louisville Cement Company . . . Louisville 2, Kentucky**



# Bids—Low Bids—Contracts—Second Section

## NEW ENGLAND

### HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

October 14 Connecticut October 15 Massachusetts

### HEAVY CONSTRUCTION—LB & CA

▲ **Phoenix Bridge Co.**, Phoenixville, Pa., LB $4,490,683 (2 bidders) furnishing, fabricating, directing of structural steel for superstructure of Glastonbury-Wethersfield Bridge across Connecticut River between Glastonbury and Wethersfield, HARTFORD, CONN. Greater Hartford Bridge Auth., 71 Capital Ave., Hartford, Conn. CD 10/1/56.

## MIDDLE ATLANTIC

### HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

October 31 New York

### HEAVY CONSTRUCTION—LB & CA

▲ **English Electric Co. Ltd.**, 14 Strachan St., Toronto, Ont., LB $9,458,375 furnishing twelve 28,000 hp. pump/turbines with welded spiral casings; LB $9,886,775 (3 bidders) furnishing all equipment and installing casings, for Tuscarora Pump Power Plant, Niagara Power Proj.; Spec. PA-N 24001, Niagara Contract NP-1, NEW YORK Power Auth. of State of New York, The Coliseum Tower, 10 Columbus Circle, New York 19, N.Y. Bids Oct. 1. CD 8/22.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg. Bids opened 9/27.

Pa.—**Marsolino Constr. Co.**, 309 Fayette Natl. Bank Bldg., Uniontown, Pa., LB $1,159,950 (7 bidders) 23,621 ft. divided hy. of crushed aggreg. base with bit., 1 bridge T.R. 51, N. Union, Franklin and Menallen Twps., Fayette Co.; LB $2,259,823 (8 bidders) 28,525 ft. divided hy. crushed aggreg. base with bit., 1 bridge, T.R. 51, Menallen and Franklin Twps., Fayette Co.;

Pa.—**S. J. Groves & Sons Co.**, Box 8, Ann Arbor, Mich., LB $3,434,037 (4 bidders) 26,900 ft. divided hy. c. conc., 5 bridges L.R. 797 (2), section of Erie Thruway, Springfield and Girard Twps., Platea Boro, Erie Co.;

Pa.—**Fred W. Ewing, Inc.**, 405 W. Main St., Corry, Pa., LB $2,458,071 (8 bidders) 21,374 ft. divided hy. c. conc., 6 bridges, section of Erie Thruway Girard and Fairview Twps., Erie Co.;

Pa.—**Central Pa. Quarry Stripping & Constr. Co.**, 270 S. Pine St., Hazelton, Pa., LB $2,587,727 (8 bidders) 8,840 ft. divided hy. crushed aggreg. base with bit., 5 bridges, L.R. 790 (1B) City of Scranton, Dickson City Boro, Lackawanna Co.;

Pa.—**Gasparini Excavating Co.**, 1439 Main St., Pecksville, Pa., LB $2,014,042, (9 bidders) 10,160 ft. divided hy. of crushed aggreg. base with bit., 4 bridges, L.R. 70, Section 1A, Dumnore and Throop Boros; Scranton City, Lackawanna Co.;

Pa.—**Frank Donatelli Co.**, 5779 Broad St., Pittsburgh 6, Pa., LB $205,792 (5 bidders) 4,018 ft. c. conc. T.R. 906, City of Monessen, Westmoreland Co.;

Pa.—**A. C. Moyer**, Lemont Furnace, Pa., $120,812 (6 bidders) widening, overlaying 14,048 ft. existing road with crushed aggreg. base, bit. surf. LR 30027(S-11)_30066 (S-11), Cumberland Twp., Greene Co.;

Pa.—**L. M. Hutchison**, R.D. 1, Mt. Union, Pa., LB $99,940 (11 bidders) 4,800 ft. crushed aggreg. base with bit. surf. T.R. 103, Granville Twp., Mifflin Co.;

Pa.—**J. H. Beers, Inc.**, R.D. 2, Bangor, Pa., LB $85,571 (9 bidders) 1,500 ft. crushed aggreg. base with bit. T.R.U.S. 611, Upper Mt. Bethel Twp., Northampton Co.;

Pa.—**Dan Hilliard**, R.D. 7, Butler, Pa., LB $105,240 (7 bidders) 7,853 ft. crushed aggreg. base with bit. surf. T.R. 138, Clay Twp., Butler Co. CD 9/9.

### BUILDINGS—LB & CA

▲ **Wm. F. Sutter**, Nescopeck, Pa. CA $3,372,450. 1 and 2 story, brick, block, concrete, steel SENIOR HIGH SCHOOL, BUTLER, PA. Butler Area Joint School Dist., Butler, Pa. Grand total $5,457,205. Bids Aug. 12. CD 8/26, under LB;

**Harry Sougherty & Son, Inc.**, Freeport, Pa. CA $707,990, heating and ventilating; CA $710,265, plumbing (Butler, Pa.);

**J. D. Kissel**, Geneva, O. CA $666,500. electrical constr. (Butler, Pa.).

▲ **Glenmore Homes Inc.** 6233 Frankford Ave., Phila., Pa. CA $3,450,000. 300-unit RESIDENTIAL DEVELOPMENT, Academy Rd., etc., PHILA., PA. Fairdale-Birch Inc., 8900 Verree Rd., Phila., Pa.

▲ **Stone Constr. Co.**, 1717 Brandywine St., Phila., Pa., CA $4,500,000.. 229-unit APARTMENT, Chelten and Wissahickon Aves., PHILA., PA. Stafford House, c/o George S. Ideil, archt., 117 S. 17 St., Phila., Pa.

**ELGOOD** HYDRAULIC & MECHANICAL **JACKS** to 600 ton capacity

**RENTALS • SALES**

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PILE TESTING - PRESTRESSED CONCRETE

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**ARco** | AIR POLUTION CONTROL EQUIPMENT

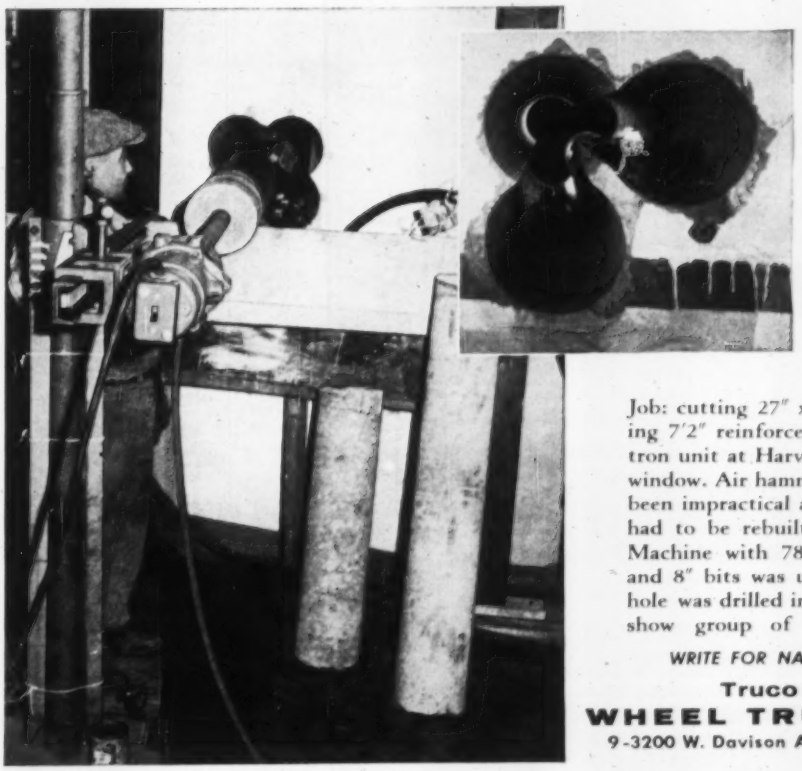
GAS • FUME • DUST • WASHING AND SCRUBBING UNITS • ACID-PROOF CONSTRUCTION FOR CORROSIVE CONDITIONS

Inquiries invited from Industrial Sales Representatives

**AUTOMOTIVE RUBBER COMPANY INC.**

PROCESS EQUIPMENT DIVISION

55 W. 42nd ST. • NEW YORK 36, N. Y.



**DRILLING 8" HOLES THROUGH 7-FOOT REINFORCED CONCRETE WALL AT 1" PER MINUTE**

Job: cutting 27" x 10" window opening in existing 7'2" reinforced concrete wall housing cyclotron unit at Harvard University for observation window. Air hammers or carbide bits would have been impractical and the entire wall would have had to be rebuilt. A Truco Diamond Drilling Machine with 78 rpm heavy duty drill motor and 8" bits was used to drill eight holes. Each hole was drilled in two four-foot stages. Pictures show group of four holes from each end.

*WRITE FOR NAME OF NEAREST DISTRIBUTOR*

**Truco Swivel Division**

**WHEEL TRUEING TOOL CO.**

9-3200 W. Davison Ave. • Detroit 38, Michigan

# FREE BOOKLET WAITING FOR YOU

## Shows how Atlantic Pneumatic Pipe Drivers Pay For Themselves!

The ATLANTIC Pneumatic Pipe Driver is sturdily built for today's improved high speed machines! *Fast*—no delay in coupling additional lengths of pipe—specially designed recess in driving head does not burr pipe.
Universal joint action between driving head and shank simplifies driving in small spaces. Wide size range. Fits standard pneumatic pavement breakers.

**ATLANTIC STEEL CORP.**
**Since 1918 . . . Always First with the Finest!**
**1775 Broadway, New York 19**


## NORTHERN ILLINOIS TOLL HIGHWAY

### Advertisement for Bids CONTRACTS C-1, C-2, C-3, C-4, C-5

### Bids to be opened October 24, 1957

All work under Stage I of the contracts shall be completed on or before July 31, 1958. All work under Stage II of the Contracts shall be completed on or before December 31, 1958. All work under Stage I and II consists of the designing, furnishing, installing and maintaining for a period of years of a complete communications system for the Northern Illinois Toll Highway.

**CONTRACT C-1**

Contract C-1 provides for the sale or rental of a complete Radio Communications System and for the maintenance of all such equipment for a period of ten years.

**CONTRACT C-2**

Contract C-2 provides for the sale or the rental of microwave trunk communications equipment exclusive of microwave links together with a complete mobile communications system and for the maintenance of all such equipment for a period of ten years.

**CONTRACT C-3**

Contract C-3 provides for the rental of approximately fifteen land line communication links to the microwave trunk system and the maintenance thereof.

**CONTRACT C-4**

Contract C-4 provides for the rental of a complete land line communications system exclusive of the mobile radio telephone system and the maintenance thereof.

**CONTRACT C-5**

Contract C-5 provides for the sale or rental of a mobile radio telephone system for use with a land line trunk and link communications system and the maintenance of all such equipment for a period of ten years.

Contracts C-1, C-2, C13, C-4 and C-5 are optional contracts and not more than two of these contracts will be awarded. Award of such contracts, if any award or awards be made, will be upon Contract 1, upon Contracts 2 and 3, or upon Contracts 4 and 5, and will be to the lowest responsible bidder or bidders thereon.

Bidders are cautioned that The Illinois State Toll Highway Commission has not yet made a final decision to use (1) a complete communication system utilizing radio equipment as specified in Contract C-1; (2) a complete communication system utilizing microwave radio trunk equipment with land line links as specified in Contracts C-2 and C-3 together; (3) a complete communications system utilizing land line trunk and link equipment together with radio telephone installations in mobile equipment as specified in Contracts C-4 and C-5. However, the amounts bid for Contracts C-1, C-2 and C-3, and C-4 and C-5 will be among the factors which the Commission will consider in making its determination of the type of communications system to be used on the Northern Illinois Toll Highway. The Commission will also consider the possible benefits and detriments of ownership of equipment versus the rental thereof. For these and other reasons the Commission reserves the right to reject any and all proposals.

*Write, wire or phone for detailed information and necessary forms, Chief Engineer, Room 1654, 20 N. Wacker Dr., Chicago 6, Ill. Telephone Franklin 2-7020.*

**THE ILLINOIS STATE TOLL HIGHWAY COMMISSION**
**By Austin L. Wyman, *Chairman***

## SOUTH

### HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

October 16 Viringia — October 18 Kentucky

STREETS AND ROADS

October 16 Viringia — October 18 Kentucky

▲ Tenn., Nashville—TERMINAL—BA 11/13—City, Purch. Comn., Nashville, 3 story, airport terminal, $3,000,000. CD 11/23/55.

### BUILDINGS—LB & CA

▲ Combustion Eng. Co., 200 Madison Ave., New York, N. Y., CA $10,960,000 BOILER for steam generating plant at Widow's Creek near Bridgeport, ALABAMA. Tennessee Valley Auth., Sprankles Bldg., Knoxville, Tenn. CD 10/7/57;
General Electric Co., River Rd., Schenectady, N. Y., CA $16,112,000 TURBO GENERATORS (Alabama.

▲ Meco, 440 Northside Dr., Atlanta, Ga., LB $2,915,000, installing ELECTRICAL EQUIPMENT in city power plant, MEMPHIS, TENN. City, City Hall, Memphis, Tenn. Bids Sept. 26. CD 8/26/55.

## MIDDLE WEST

### HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

October 15 Indiana — October 22 Wisconsin

STREETS AND ROADS

October 15 Indiana — October 22 Wisconsin

### HEAVY CONSTRUCTION—LB & CA

▲ OHIO—State Dpt. Hys., Columbus, Zone 15, rejected bids Sept. 17, Type T-71 and structures 6.295 mi. SR 1, Section 11.50, Proj. I-1105 (9) Kingston Twp., Delaware Co. LB $2,970,932. CD 9/30, under LB.

▲ ILLINOIS—Illinois State Toll Hy. Comn., 20 N. Wacker Dr., Chicago, Bids opened Sept. 26,
Ill.—Sjostrom & Sons, Inc., 1718 7 Ave., Rockford, Ill., LB $2,081,461, Contr. TP-1-11 toll plazas, etc., 9 on North Illinois Tollway and 2 on Tri-State Tollway, Cook, Kane, Lake and Winnebago Counties;
Ill.—Standard Paving Co., 30 N. LaSalle St., Peter J. Crowley Co., Box 144, Maywood, Ill., and A. L. Jackson Co., 300 W. Washington St., Chicago, Ill., LB $2,955,002, Contr. TP-2 11 toll plazas, etc., 7 Tri-State Tollway, 1 on North Ill. Tollway and 3 on East-West Tollway, Cook and DuPage Counties;
Ill.—Rippel Architectural Metals, Inc., 1525 N. Kilpatrick Ave., Chicago, Ill., LB $462,350, furnishing, fabricating, del. and installing 89 toll booths. CD 9/5.

▲ MICHIGAN—State Hy. Comn., Stevens T. Mason Bldg., Lansing,
Al Johnson Co., Foshay Tower, Minneapolis, Minn., LB $4,075,000, est. $4,000,000 (12 bidders) approaches, substructure and misc. constr. for double deck vertical lift bridge carrying M-26 and US 41 relocated the Copper Range R.R. and Duluth South Shore & Atlantic R.R. over Portage Lake between Houghton and Hancock, U B1 of 31-10-1 CSU, U-175 (22) Houghton Co. Bids Sept. 27. CD 8/23.

### BUILDINGS—LB & CA

▲ Power Constr. Co., 125 S. Marion St., Oak Park, Ill. CA $2,307,276, ADMINISTRATION BLDG., CENTRAL SHOP BLDG., b. conc. paving, storm sewers, concrete walks, N. of E. Tollway, intersection, Midwest Rd. and 22nd St. between Hinsdale and Elmhurst, DuPage Co., ILLINOIS. Ill. State Toll Hy. Comn., 20 N. Wacker Dr., Chicago, Ill. (Correction—contractors' price). CD 10/2, under CA.

▲ T. S. Willis, 20 E. Milwaukee St., Janesville, Wis. CA Est. $3,000,000, 3 and 4 story, part bsmnt., 317x500 ft. PREP COLLEGE, EDGERTON, WIS. St. Joseph's Redemptorist Fathers, Edgerton, Wis. Bids Sept. 18. CD 9/4.

▲ Victory Constr. Co., 5735 N. Dixie St., Dayton 4, O., CA $2,239,500. low-rental HOUSING, Andover, Burton, Henry Ruff and Liberty Sts., INKSTER, MICH. Inkster Housing Comn., Inkster, Mich. Bids Aug. 28. CD 8/20.

## WEST OF MISSISSIPPI

### HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

October 15 Iowa

STREETS AND ROADS

October 15 Iowa, Kansas, Minnesota

### HEAVY CONSTRUCTION—LB & CA

▲ TEXAS—State Hy. Comn., Austin,
Tex.—Cage Bros., 6959 San Pedro Ave., San Antonio, Tex., CA $3,244,925 flex. base, c. conc. and hot mix b. conc. 6.509 mi. Hy. US 75 Proj. I 1108 (1) Walker Co.; CA $1,934,899, flex. base and hot mix b. conc. 15.931 mi. Hy. US 90, Proj. I. 235 (29) Howard Co.;

(Continued on page 70)

# Prove on Your Job that the Sherman Digs Faster to Save You Money

The recently introduced Model "F" Sherman Power Digger excavates faster than any comparable backhoe!

Hard to believe? Well, don't take our word for it. We challenge you to "Clock it"! Ask your Ford Tractor Dealer to demonstrate the new Sherman on *your* job while you time it with a stopwatch. Prove to yourself that it saves you money by producing more work per dollar invested in time, equipment, maintenance and manpower.

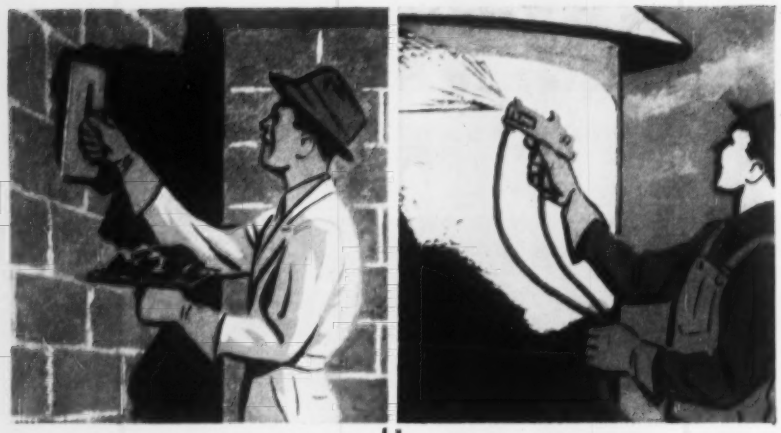
If you are interested, we'll be glad to tell you of the many revolutionary features which contribute to the digging speed and durability of the new Model "F". Just drop us a line for Bulletin No. 1470.

Sold and Serviced by your local
FORD TRACTOR DEALER

**Sherman**

PRODUCTS, INC.
ROYAL OAK, MICHIGAN

POWER DIGGERS • FRONT END LOADERS • FORK LIFTS



# Flintkote's answer to economical, long term protection of metal and masonry

**HYDRALT*** asphalt protective coatings are clay emulsions, reinforced within the film. Won't sag under heat. Won't get brittle or crack in cold. Will outlast any other form of bituminous coating exposed to weather.

They give best protection against moisture, corrosion, smoke and fumes. One coat of Hydralt is equal in thickness to many coats of paint. Stands up for years at lowest annual cost.

To restore old or leaky masonry buildings, protect with Hydralt. Give steel lasting protection with Hydralt. It is black, but if your finishing problem requires color a companion product... Decoralt ... is now available.

**DECORALT†**, a pigmented flexible latex base dispersion is designed to coat asphaltic materials and asphalt protected surfaces *in color* . . . red, green, white, cement gray, or variations.

It is weather resistant, opaque, full bodied . . . fortified with asbestos and minerals. Decoralt imparts desirable decorative finish over asphalt...wear resistant, too, over pavements.

Decoralt also seal coats masonry as a direct application for weather resistant, decorative finishing more durable than paints. Use it over concrete, cinder block, brick or stucco.

*Reg. U. S. Pat. Off.

†*A Trademark of The Flintkote Company*

*Get full information about Flintkote's effective waterproofing, corrosion proofing three coat system with color finish. Technical data sheets for these products are yours for the asking.*

**The Flintkote Company,** Industrial Products Division, 30 Rockefeller Plaza New York 20, N. Y.

**Boston • Chicago Heights • Detroit • Los Angeles • New Orleans • Philadelphia**

In Toronto, Ontario: **The Flintkote Company of Canada, Ltd.**

In London, England: **Industrial Asphalts Company, Ltd.**

FLINTKOTE INDUSTRIAL PRODUCTS

**FLINTKOTE**


(Continued from page 68)

Tex., Austin Bridge Co. & Austin Road Co., P.O. Box 1590, Dallas, Tex., CA $1,197,063, c. conc. 2.457 mi. Hy. US 75 Proj. I 370 (3) Montgomery Co.;
Tex., R. B. Butler, Inc., P.O. Box 471, Bryan, Tex., CA $510,741, flex. base and c. conc. 1.968 mi. Hy. U.S. 190, Proj. F 490 (12) Brazos and Madison Counties. Grand total $6,887,628. Bid Sept. 17, awarded Sept. 27. CD 9/20, under LB.

## BUILDINGS—LB & CA

▲† Harrison & Haag, 2117 N. W. Britton St., Oklahoma City, Okla., CA $6,797,848, two story HOUSING UNITS (Capehart) ENG-23-028-57-72, FORT RILEY, KAN. U. S. Eng., 1800 Federal Office Bldg., Kansas City, Mo. Bids May 7, awarded Sept. 10. CD 5/14.

▲† H. K. Ferguson Co., 1783 E. 11 St., Cleveland, O., CA $3,890,000, third phase of Navy-Callery Chemical PLANT, for Dpt. Navy, MUSKOGEE, OKLA. Callery Chemical Co., sub. Mine Safety Appliance Co., 201 N. Braddock St., Pittsburgh, Pa. CD 8/21, under LB.

▲ Kennedy-Van Saun Mfg. & Eng. Corp., 2 Park Ave., New York, N. Y., or c/o owner, CA $3,800,000 PLANT EXPANSION, incl. raw grinding mill, rotary kiln, finishing mill, 6 silos 2 blending tanks, at Echo, ORANGE, TEX. Texas Portland Cement Co., Orange, Tex.

# FAR WEST

## HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
October 25 Arizona . November 7, California

## BUILDINGS—LB & CA

▲ Gresham Constr. Co. & Aiken Constr. Co., P.O. Box 300, Santa Clara, Calif., CA $3,306,483 (9 bidders) 220 units armed services HOUSING, Kingsley Field, IFB 58-1, KLAMATH FALLS, ORE. Purch. & Contg. Officer, U. S. A. F., Kingsley Field, Calif. Awarded Sept. 26. CD 9/10, under LB.

▲ Macco Corp., 14409 Paramount Blvd., Los Angeles, Calif., CA Est. $4,800,000, 100 ton per day AMMONIA PLANT, LATHROP, CALIF. California Ammonia Co., Lathrop, Calif. Best Fertilizers Co. will operate. CD 7/16.

▲ Williams & Burrows, Inc., 500 Harbor Bldg., Belmont, Calif., LB $3,179,000 LABORATORY, STEAM PLANT, utilities, parking area for Sandia Corp., LIVERMORE, CALIF. U. S. Atomic Energy Comn., 518 17 St., Oakland, Calif. Svedurp & Parcel, 417 Montgomery St., San Francisco, Calif., engrs. CD 10/15/56.

# CANADA

## HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
October 16, 30 Ontario

## HEAVY CONSTRUCTION—LB & CA

▲ Omega Constr. Co., 6555 Cote des Neiges Rd., Montreal, Que., LB $3,943,210 (6 bidders) bathhouse, pool and gymnasium, sports center, Maisonneuve Park, MONTREAL, QUE. Paul Lambert, 4050 Trafalgar Rd., Montreal, Que., archt. Bids Sept. 18. CD 8/13.

▲ Miron Constr. Ltee., 2201 Cote St. Michel Rd., and J. D. Stirling Ltd., 940 Cote de Lissee Rd., Montreal, Que., CA $7,231,694 (14 bidders) approx 13,000 ft. Sect. 1, Metro Bldg. Expressway, incl. work at Decarie traffic circle, MONTREAL, QUE. Montreal Metropolitan Comn., 506 St. Catherine St. E., Montreal, Que. Bids Sept. 25. CD 9/4.

## BUILDINGS—LB & CA

▲ Omega Constr. Co., 6555 Cotes des Neiges Rd., Montreal, Que. CA Est. $3,000,000, 75-unit HOUSING, L'Assomption Blvd., near Maisonneuve Hospital, MONTREAL, QUE. Owner, c/o contractor. Awarded Sept. 25.

# LATIN AMERICA

## BUILDINGS—LB & CA

▲ Chemiebau Dr. A. Zieren, GMBH, Cologne, Germany, and Techint Engineering Corp., 280 Madison Ave., New York, N. Y., U. S. A. CA Total est. $4,000,000 design and construct SODA PLANT, TARAPACO, CHILE. Chilean Corp. for Production Promotion, Santiago, Chile;
Agerman Group (By the Electrical Firm AEG, Frankfort, Germany and Italian group headed by Byansaldo S. P. A., Genoa, Italy) CA equipment for soda plant (Tarapaco, Chile).

# AMERICANS ABROAD

## BUILDINGS—LB & CA

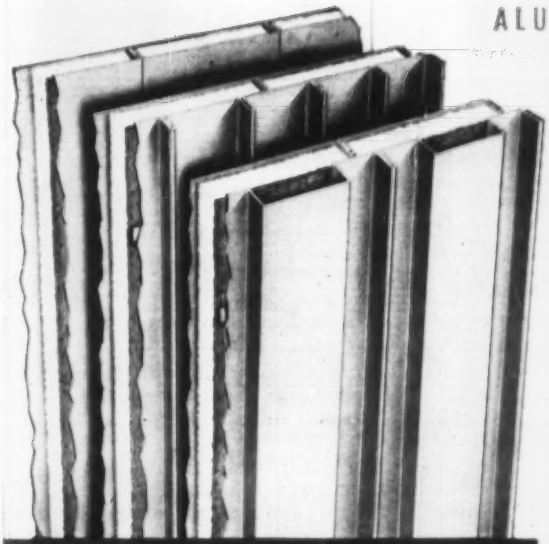
▲ Badger Mfg. Co., 230 Bent St., Cambridge, Mass., U. S. A. CA Est. $50,000,000 design and construct 31,550,000 bbls. per year REFINERY, near ROTTERDAM, NETHERLANDS. Standard Oil of New Jersey, 15 W. 51 St., New York, N. Y., U. S. A.

(Proposal Advertisement see pp. 82 to 85)

# INSULATED METAL WALLS

for INDUSTRIAL and COMMERCIAL BUILDINGS

ALUMINUM, STAINLESS or GALVANIZED STEEL



**FLUSH, RIBBED, or FLUTED**
**Over-all "U" Factor is Superior to a Conventional Masonry Wall with Furred Lath and Plaster**

The new Ditto plant, illustrated below, is another excellent example of Mahon metal curtain wall construction in a modern industrial building. The fluted metal wall plates produce an attractive, clean-cut wall surface with a continuous pattern. Bright metal—aluminum or stainless steel—in combination with brick, stone, or other materials, offers unlimited possibilities in architectural treatment of exterior design. Mahon Insulated Metal Curtain Walls are light weight, permanent construction. Erection is fast . . . buildings can be quickly enclosed—even under low temperature conditions. They are economical, too . . . savings amount to as much as 50% of the cost of masonry walls in some types of buildings. Mahon walls are available in the three patterns shown at left. In the "Fluted Wall" and the "Ribbed Wall", vertical joints are invisible—symmetry of pattern is uninterrupted across the wall surface . . . and, both of these walls can be field constructed up to sixty feet in height without a horizontal joint. These two design features, which are extremely important from an appearance standpoint, were engineered into Mahon Insulated Metal Curtain Walls to produce a finer appearing wall surface free from unsightly joints. When you build with metal curtain walls, you, too, will want these Mahon "better look" features. See Sweet's Files for information, or write for Catalogue W-57.

**THE R. C. MAHON COMPANY • Detroit 34, Michigan**

Sales-Engineering Offices in Detroit, New York and Chicago • Representatives in Principal Cities

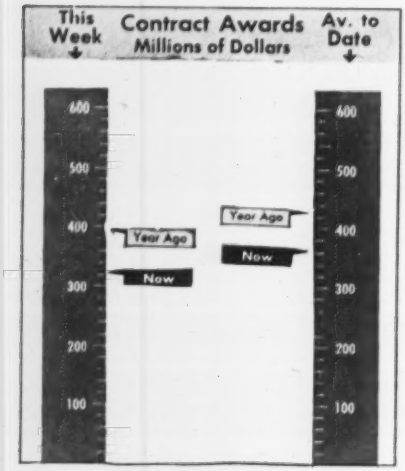
Manufacturers of Insulated Metal Curtain Walls and Wall Panels; Underwriters' Rated Metal-clad Fire Walls; Steel Roof Deck and Long Span M-Decks; Permanent Concrete Floor Forms; Acoustical and Troffer Forms; Electrified M-Floors; Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Fire Doors and Fire Shutters.

In this new, modern plant for Ditto, Inc., Lincolnwood, Illinois, 16,200 sq. ft. of Mahon Insulated Aluminum Curtain Wall of the Fluted Pattern were employed. Battey & Childs, Architects. Charles B. Johnson & Son, Inc., General Contractors.

MAHON

# Construction Scoreboard

## Activity this Week




### AMOUNT OF CONTRACTS LET

| By Ownership | This Week | Cum. 41 wks 1957 | Chge '56-'57 % |
|---|---|---|---|
| | millions | | |
| Federal | $53.2 | $1,964.6 | +41 |
| State and Municipal | 120.3 | 5,936.7 | +14 |
| Total Public | 173.5 | 7,901.3 | +20 |
| Total Private | 150.4 | 6,843.1 | −37 |
| U. S. Total | $323.9 | $14,744.4 | −15 |
| **By Type of Work** | | | |
| Waterworks | $9.4 | $275.9 | −1 |
| Sewerage | 10.9 | 445.3 | −7 |
| Bridges | 10.0 | 571.6 | +15 |
| Highways | 44.0 | 2,461.0 | +26 |
| Earthwork, Waterways | 5.4 | 863.9 | +39 |
| Buildings: | | | |
| Public, Excl. Housg. | 71.2 | 1,850.8 | +13 |
| Public Housing | 19.5 | 545.7 | +98 |
| Private Housing | 69.5 | 2,432.5 | −45 |
| Commercial | 16.1 | 1,384.4 | −9 |
| Industrial | 59.0 | 2,634.0 | −38 |
| Unclassified | 8.9 | 1,279.3 | −7 |
| U. S. Total | $323.9 | $14,744.4 | −15 |

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

### NEW CAPITAL FOR CONSTRUCTION

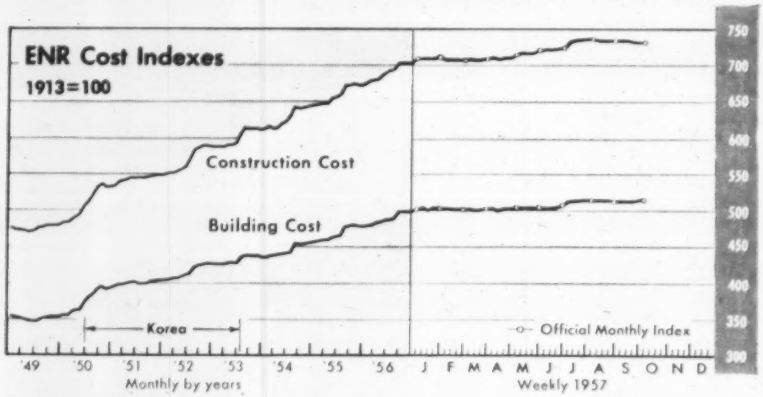
| | Week of Oct. 3 | Cum. 40 wks 1957 | Chge '56-'57 % |
|---|---|---|---|
| | millions | | |
| Corporate Securities | $38.7 | $4,416.2 | +14 |
| State and Municipal: | | | |
| All Except Housing | 84.7 | 4,232.6 | +22 |
| Housing | | 155.8 | +268 |
| Federal Loans | | 171.7 | +29 |
| Federal Aid | | 2,161.2 | +102 |
| Total Nonfederal | $123.4 | $11,137.5 | +30 |
| Federal Appropriations: | | | |
| In U. S. | | $2,777.0 | −20 |
| Outside U. S. | | 29.0 | +82 |
| Total New Capital | $123.4 | $13,943.5 | +16 |

## Cost Indexes as of Now

| ENR INDEXES (1913 = 100), 20-cities' average | Week of Oct. 3* 1957 | % Change from Sept. 5 1957 | % Change from Oct. 4 1956 |
|---|---|---|---|
| Construction Cost | 737.14* | −0.1 | +4.6 |
| Building Cost | 516.78* | +0.1 | +3.3 |

*Official Monthly Index for October

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518




| WAGE RATES, 20-cities' average | Oct. 1957 | % Change from Sept. 1957 | % Change from Oct. 1956 |
|---|---|---|---|
| Common | $2.334 | 0 | +6.5 |
| Skilled (average 3 trades) | 3.604 | +0.5 | +5.3 |
| Bricklayers | 3.859 | +0.8 | +4.4 |
| Structural Ironworkers | 3.624 | +0.8 | +6.6 |
| Carpenters | 3.331 | 0 | +5.1 |
| Equipment operators (average three types) | 3.237* | +0.4** | +7.6 |

*September **August

| MATERIAL PRICES, 20-cities' average | | | |
|---|---|---|---|
| Structural Steel (average 3 mills), per cwt. | 5.275 | 0 | +5.5 |
| Lumber, 2x4 Fir, per M fbm | 114.875 | −0.5 | −2.1 |
| Lumber, 2x4 Pine, per M fbm | 100.433 | −0.5 | −2.8 |
| Cement, bulk, per bbl | 3.923 | −0.2 | +4.6 |
| Sand, per ton | 2.487 | 0 | +3.2 |
| Ready-mixed concrete, per cu yd | 13.721 | +0.1 | +2.5 |
| Gypsum sheathing, ½"x2'x8', per Msf* | 63.110 | +0.1 | +2.9 |
| Fiber board sheathing, ½" sq. ed, per Msf* | 71.300 | +0.04 | +2.3 |
| Mineral wool insulation, 3' batts, per Msf* | 70.974 | +0.2 | −0.4 |
| Crushed stone, 1½", per ton, CL | 2.810 | +0.1 | +0.6 |
| Concrete blocks, sand gravel, 8"x8"x16", each* | .224 | 0 | +2.2 |
| | Sept. 1957 | Aug. 1957 | Sept. 1956 |
| Brick, common, per M | 37.675 | +0.5 | +2.1 |
| Lime, hydrated finishing, per ton, CL | 36.499 | +0.6 | +8.4 |
| Structural clay tile, 3x12x12", per M, 2,000 up* | 180.533 | +0.7 | +3.8 |
| Vitrified clay sewer pipe, std 12", per ft | 1.311 | −0.3 | +6.0 |
| Concrete sewer pipe, 12", per ft | 1.212 | +1.0 | +6.6 |

*Delivered, trucklots

### ENR INDEX REVIEW

| | Construction Cost | | Building Cost | | Volume | |
|---|---|---|---|---|---|---|
| 1956 | 1913 = 100 | 1949 = 100 | 1913 = 100 | 1949 = 100 | 1913 = 100 | 1949 = 100 |
| Oct. | 703.88 | 147.56 | 499.54 | 142.00 | 729 | 211 |
| Nov | 704.13 | 147.61 | 500.48 | 142.27 | 542 | 157 |
| Dec | 703.82 | 147.55 | 500.17 | 142.18 | 624 | 180 |
| **1956 Average** | **692.37** | **145.14** | **490.76** | **139.50** | **671** | **194** |
| 1957 | | | | | | |
| Jan | 707.90 | 148.40 | 501.96 | 142.69 | 504 | 146 |
| Feb | 710.06 | 148.85 | 502.59 | 142.87 | 546 | 158 |
| Mar | 708.64 | 148.56 | 501.37 | 142.52 | 553 | 160 |
| Apr | 709.30 | 148.69 | 501.37 | 142.52 | 564 | 163 |
| May | 715.70 | 150.04 | 503.01 | 142.99 | 553 | 160 |
| June | 721.36 | 151.22 | 504.17 | 143.32 | 588 | 170 |
| July | 724.15 | 151.81 | 506.62 | 144.01 | 587 | 170 |
| Aug | 738.63 | 154.84 | 516.90 | 146.93 | 528 | 153 |
| Sept | 737.78 | 154.66 | 516.12 | 146.71 | 466 | 135 |
| Oct | 737.14 | 154.53 | 516.78 | 149.90 | | |

# September Contracts Hit Year's Low

**Private and public work both show September decline, although mass housing contracts showed new strength**

Construction contract awards in September dropped to $1.2 billion, the lowest volume recorded so far this year. According to ENGINEERING NEWS-RECORD and CONSTRUCTION DAILY figures, the month's total was also the smallest award accumulation for a September month since 1954.

The total represented a 14% decline from the August weekly rate and a 16% drop from the rate of September, 1956.

The public and private awards categories both slipped to lower levels during September. Private contracts of $644 million were 5% below August's volume and 28% below the total registered in September of last year. Total public work during the month tallied $603 million. It was a decline of 21% from August but an increase of 3% over September, 1956.

In the public category, state and municipal contracts of $527 million dropped 17% from August but held 16% above September of last year largely because of the $52.4 million Rocky Reach Dam award.

Federal work was off sharply during the month with contracts of only $76 million. The figure was 41% below August and 44% under last year. The September drop represented a low point so far this year.

For the first nine months, contract awards amounted to slightly more than $14 billion, a 15% drop in dollar value from the first nine months of last year. The decline reflects the 37% drop in private awards, which registered $6.5 billion. The size of the drop in private work was enough to offset the 22% increase in public works with an award volume of $7.5 billion.

September was not all gloomy, however, for despite the over-all decline, the month turned up some cheerful indicators.

Mass housing awards, for example, tallied $276 million, the second largest total for the category registered this year. The figure came within 2% of the total that was scored in September, 1956, and was 43% ahead of the figure recorded for August.

On a regional basis, New England was the only one to score an increase in total awards for the nine month period. The total of $942 million was 6% above the $890 million in awards during the same period of 1956. The remaining five regions had declines ranging from a high of 28% West of the Mississippi to a low of 4% in the Far West. The Middle Atlantic region had the second greatest regional decline —20%.

Industrial building awards of $212 million in September were 28% below August and 41% behind September, 1956, with the nine month total of $2.5 billion being lower than last year's comparable period by 39%.

For September, Alabama led the industrial building field with a $75 million steam power plant placed under contract for a combination of southern power companies. This is part of a $100-150 million project to provide additional power for industrial expansion in the South. Minnesota reported a $24 million generating plant for St. Paul interests.

While commercial construction dropped to the lowest levels since January, office buildings continue to go under contract in good number. New Haven, Conn., will get an $11.3 million telephone building; Detroit will add a $10 million bank building; Cincinnati, a $9 million office building; and Palatine, Ill., a $5 million structure for Pure Oil Co.

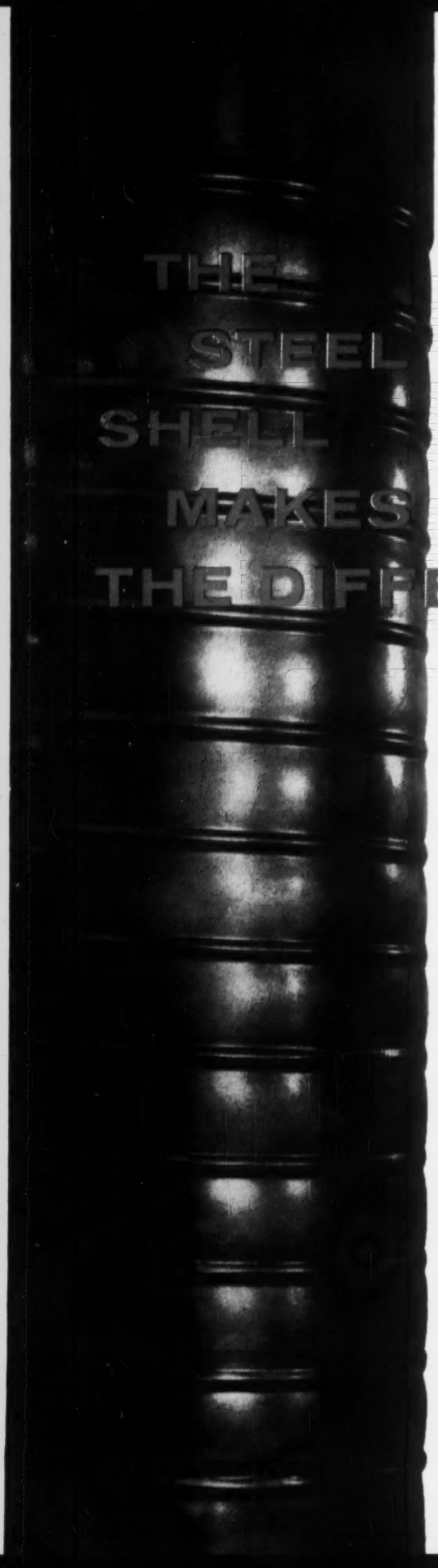
(*B&F continued on page 75*)

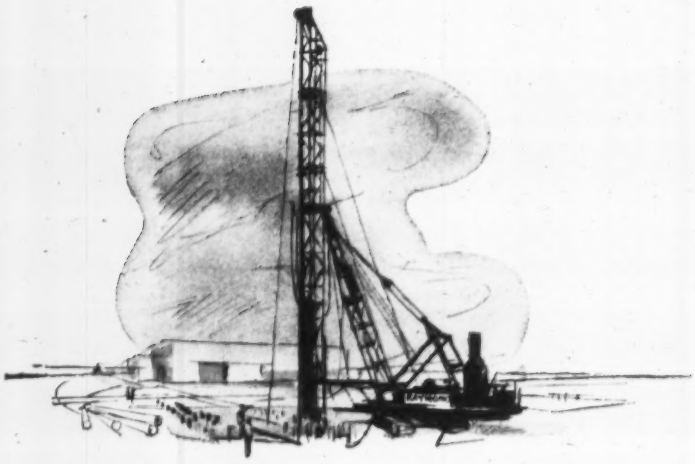
## Engineering Construction Contracts—September '57

*ENGINEERING NEWS-RECORD reports continental U. S. construction projects of the following minimum costs—waterworks, excavation, drainage and irrigation, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.*

Four Weeks Thousands of Dollars (000 Omitted)

| | September, 1957 | | | | | | U. S. Cumulative Nine Months | | % Change | Canada Sept. |
|---|---|---|---|---|---|---|---|---|---|---|
| | New England | Middle Atlantic | South | Mid-West | West of Mississippi | Far West | Total U. S. | 1957 | 1956 | '56 to '57 | 1957 |
| **Public Works** | | | | | | | | | | | |
| Waterworks | 290 | 1,479 | 2,119 | 5,318 | 4,449 | 1,795 | 15,450 | 262,121 | 262,174 | | 2,461 |
| Sewerage | 1,839 | 19,713 | 5,592 | 8,597 | 7,259 | 4,998 | 48,038 | 424,833 | 456,370 | — 7 | 3,170 |
| Bridges | 6,581 | 3,757 | 4,264 | 9,586 | 6,863 | 5,022 | 36,073 | 544,859 | 446,556 | +22 | 5,765 |
| Earthwork and waterways | 680 | 3,267 | 4,709 | 694 | 11,805 | 61,423 | 85,578 | 852,982 | 578,356 | +47 | 8,857 |
| Streets and roads | 12,076 | 39,484 | 44,933 | 40,746 | 39,621 | 15,966 | 192,856 | 2,352,899 | 1,829,935 | +29 | 13,103 |
| Public buildings, residential | 389 | 6,335 | 24,148 | 420 | 3,505 | 6,492 | 41,289 | 518,458 | 244,541 | +112 | 1,804 |
| Other public buildings | 8,377 | 36,004 | 14,176 | 27,426 | 33,385 | 37,739 | 157,107 | 1,718,413 | 1,541,477 | +11 | 13,350 |
| Unclassified | 396 | 8,077 | 3,501 | 642 | 10,662 | 3,399 | 26,677 | 868,349 | 814,175 | + 7 | 9,800 |
| **Total public** | **30,628** | **118,116** | **103,442** | **93,429** | **120,589** | **136,864** | **603,068** | **7,542,914** | **6,173,584** | **+22** | **58,910** |
| Federal government (included in above classifications) | 541 | 2,311 | 26,131 | 679 | 25,756 | 21,041 | 76,459 | 1,895,971 | 1,339,746 | +41 | 13,187 |
| **Private** | | | | | | | | | | | |
| Bridges | | | | | | | | 3,091 | 4,404 | —30 | |
| Industrial buildings | 25,147 | 19,769 | 94,143 | 28,817 | 39,183 | 4,755 | 211,814 | 2,525,649 | 4,147,809 | —39 | 17,801 |
| Mass housing | 16,863 | 133,748 | 6,074 | 74,582 | 37,858 | 6,256 | 275,961 | 2,307,280 | 4,253,209 | —46 | 8,487 |
| Commercial buildings | 21,938 | 43,816 | 4,975 | 41,629 | 8,190 | 4,702 | 125,250 | 1,339,139 | 1,412,365 | — 5 | 18,065 |
| Unclassified | 195 | 309 | 787 | 6,743 | 12,344 | 10,625 | 31,003 | 369,100 | 516,314 | —29 | 1,596 |
| **Total private** | **64,143** | **197,642** | **106,579** | **151,771** | **97,555** | **26,338** | **644,028** | **6,544,259** | **10,334,101** | **—37** | **45,889** |
| **Total Engineering Construction:** | | | | | | | | | | | |
| **September, 1957 4 weeks** | **94,771** | **315,758** | **210,021** | **245,200** | **218,144** | **163,202** | **1,247,096** | | | | **104,799** |
| August, 1957 5 weeks | 157,849 | 345,411 | 263,752 | 446,504 | 339,825 | 252,118 | 1,805,460 | | | | 159,911 |
| September, 1956 4 weeks | 142,083 | 329,745 | 240,360 | 301,125 | 343,167 | 304,104 | 1,480,492 | | | | 107,943 |
| **Nine Months 1957** | **941,829** | **3,344,637** | **1,710,220** | **3,222,443** | **2,584,137** | **2,283,907** | | **14,087,173** | | **—15** | **1,224,578** |
| Nine Months 1956 | 889,506 | 4,190,768 | 1,914,100 | 3,547,266 | 3,576,138 | 2,389,973 | | | 16,507,685 | | 1,765,651 |
| % Change '56 to '57 | +6 | —20 | —11 | —9 | —28 | —4 | | | | | —31 |



Raymond Standard Piles are cast-in-place concrete piles with a permanent, heavily-tapered steel shell. The heavier taper of this protective shell provides greater carrying capacity at less length than piles with less taper or parallel sides.

In addition to maintaining full driving resistance, Raymond's steel shell permits faster, more simple installation. For example, no test piles are required because the shell is driven into the ground until the desired driving resistance is reached. Then, too, the steel shell eliminates distortion, so there is no time lost waiting for the concrete to cure before driving adjacent piles.

For over 60 years we have provided foundations for the structures of America, and the popular Raymond Standard Pile is just one of the many supports we have developed during this time. Furthermore, our experience includes complete construction services abroad, so we are familiar with your problems. May we apply our knowledge to your next foundation project? For further information write: 140 Cedar Street, New York 6, or one of our Branch Offices across the country, or our subsidiaries in Canada, Central and South America.

**RAYMOND CONCRETE PILE CO., INC.**

# And So to Market

## Kentucky schedules sale of $35 million in road bonds

Kentucky's highway construction program may receive a forward shove when the state opens bids next month on about $35 million of an authorized $100 million issue. Gov. A. B. Chandler announced that the issue possibly would be advertised this week for sale through regular bond marketing channels. Bids for the issue will be opened Nov. 12.

The governor also said that he is confident that the bonds will be easy to sell at a maximum 3% interest rate because "there has been a slight improvement" in the bond market. In addition to the 3% interest ceiling, the bonds must be sold at par.

Governor Chandler recently had suggested that a portion of bond total authorized by the voters last November might be purchased by "patriotic" state residents and banks (ENR Oct. 3, p. 104).

In addition, the state commissioner of finance indicated that Kentucky possibly would stipulate a maturity term of less than the 30 years that had been planned originally for the bonds.

But Governor Chandler's announcement of last week indicated that the bonds would have a 30 year maturity. The only hedging over the issue came from Ward Oates, deputy finance commissioner, who said target dates for advertising and opening of the bids were based on the "anticipation that no technical difficulties will crop up".

Prior to the governor's announcement, Louisville officials said that the city was studying the possibility of investing some of its reserve funds in the proposed state bond issue.

However, one top official said that he was reluctant to discuss the matter in detail "until we get more information, especially as to the legal technicalities involved and the effect the investment would have on sinking fund assets and earning capabilities".

The city funds involved are reserves accumulated during several years to pay off term bonds issued in the past by the city.

Because these municipal bonds are not due for several years, the city's sinking fund has invested the reserves in U. S. Government securities.

The money obtained by the state from the sale of its bonds will match federal funds for financing Kentucky's roadbuilding program over a 13 year period.

(B&F continued on page 76)


**Dumpcretes help link New York State Thruway and Garden State Parkway**

A 2½ mile section of 4-lane divided concrete highway linking the New York State Thruway with the New Jersey Garden State Parkway was completed by George M. Brewster & Son, Inc., using seven Dumpcretes to handle 30,000 cu. yds. of concrete from portable plant.

SEND FOR FIELD REPORT ON THIS JOB

**Dumpcretes can reduce:**

Capital investment in equipment • Confusion at paving site • Downtime and labor costs • Wide shoulder maintenance.

**Dumpcretes can give you:**

Lower operating costs • *Flexible* delivery to paving site *and* structures • Closer quality control • Better production.

MAXON CONSTRUCTION COMPANY, INC.
Manufacturing Division 21
2600 Far Hills Building, Dayton 9, Ohio

Please send me new Dumpcrete Field Report.

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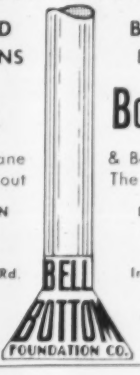
RIVERSIDE 7-8525

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WIDE-RANGE LINE OF
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Now made in complete standardized line of 11 double-acting hammers, 5 single-acting hammers and 2 double-acting extractors. Also Sand Drain Equipment and Steam Generators.

Write for free descriptive Bulletins.
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McKIERNAN-TERRY CORP.
32 Mercer Street, Dover, N. J.

Schramm Single Tampers at work on backfill. As in all other Schramm Air Tools, these have joints ground flat and are assembled without gaskets, which would alter dimensions and affect operation.

YEARS OF SERVICE PROVE...

## Drop forgings give Schramm Air Tools extra guts

More drop forgings are used in Schramm Air Tools than in other lines. *Result:* Greater strength and resistance to breakage than castings and bar stock can ever provide. This is proved in service year after year after year.

Schramm 3-Gang Tamper powered by Schramm Pneumatractor. Schramm Air Tools cannot be assembled incorrectly. If two parts can be assembled in more than one way, both ways will work equally well.

Schramm Form Pin Driver. In all Schramm Air Tools, removable and replaceable bushings are installed in parts subject to the most wear. This protects such parts as spacers, which decrease tool efficiency when worn.

Schramm Paving Breaker can also be used as a sheathing driver, asphalt cutter, clay spade and concrete buster. Like all Schramm tools, it provides automatic lubrication of all wearing parts.

Schramm CD-25 Digger—lightest in its class, yet has the most power. Replaceable chuck bushings, in this and all other Schramm tools, protect against wear and hold steels true to tool.

*Complete details of Schramm Air Tools are contained in Catalog SAB-56. Send for your free copy, or ask your local Schramm Dealer for demonstration. You'll find him listed in the Yellow Pages of your Telephone Directory.*

Schramm Sump Pump operates from any air source—pumps sludge, mud, water or raw sewage with equal ease. Pumping rates: 400 gpm at 10-ft head—340 gpm at 20-ft head—280 gpm at 30-ft head.

**Schramm, Inc.**

MANUFACTURERS OF AIR COMPRESSORS

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# Licensing Dispute

### Roadbuilders want some equipment fees dropped

California roadbuilders have told state's officials that highway construction costs may be higher in the future unless the state moves to amend its registration fee requirements on some types of earthmoving equipment.

The contractors are asking two changes in present licensing requirements. They are:

- That carrying scrapers and tractor-hauled bottom-dump vehicles not be considered as dump trucks—a category that is specifically excluded from the list of highway construction equipment exempt from registration fees.
- That a section of highway under repair should not be considered a highway for purposes of levying registration fees on the equipment operating over it, even if one or more lanes of the facility remain open to normal traffic.

Until recently the Department of Motor Vehicles did not strictly enforce the registration law as applied to the type of equipment in question, but has changed its tactics in an effort to obtain a "reasonable interpretation" of the law. The department indicated that a "friendly suit" could clarify the registration law.

- **Bills and seizure**—Within recent weeks, contractors received bills from the department that ranged up to $14,000 on earthmoving equipment. Some contractors paid the registration fee bills under protest. Others refused payment and, as a result, their equipment was seized by the state. To recover the machinery, these contractors had to pay a double registration fee as a penalty for non-payment of the original bill.

Contractors, in seeking a ruling from the state's attorney general on the registration issue, argued that when the legislature excluded dump trucks from the list of highway construction equipment exempt from license fees, it inadvertantly overlooked the carrying scrapers and bottom-dump vehicles that are basically off-highway units. Being wide and heavy, they must be partially stripped and trailer-hauled, and even then a permit must be obtained for the trailer trip.

The contractors also objected to the requirement that when non-exempt vehicles—such as dump trucks—are working on a highway rebuilding or repair job that does not require closing of all lanes to traffic, a registration fee must be paid.

(Continued on page 79)

Stud-Welding

# "It's a Pistol!"

FASTEST
SMALLEST
LIGHTEST
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# NELSON NS-10

GUN THAT FIGHTS HIGH FASTENING COSTS

## IT'S YEARS AHEAD... the NELSON NS-10

Small, but mighty, this newest advancement in stud welding offers countless new opportunities in manufacturing and construction. The NS-10 is balanced like a pistol . . . gives you more welds per day with less fatigue . . . saves real time and money. Its slim profile lets you end-weld in close quarters and the light weight of the NS-10 makes it as portable as a handyman's ¼" power drill.

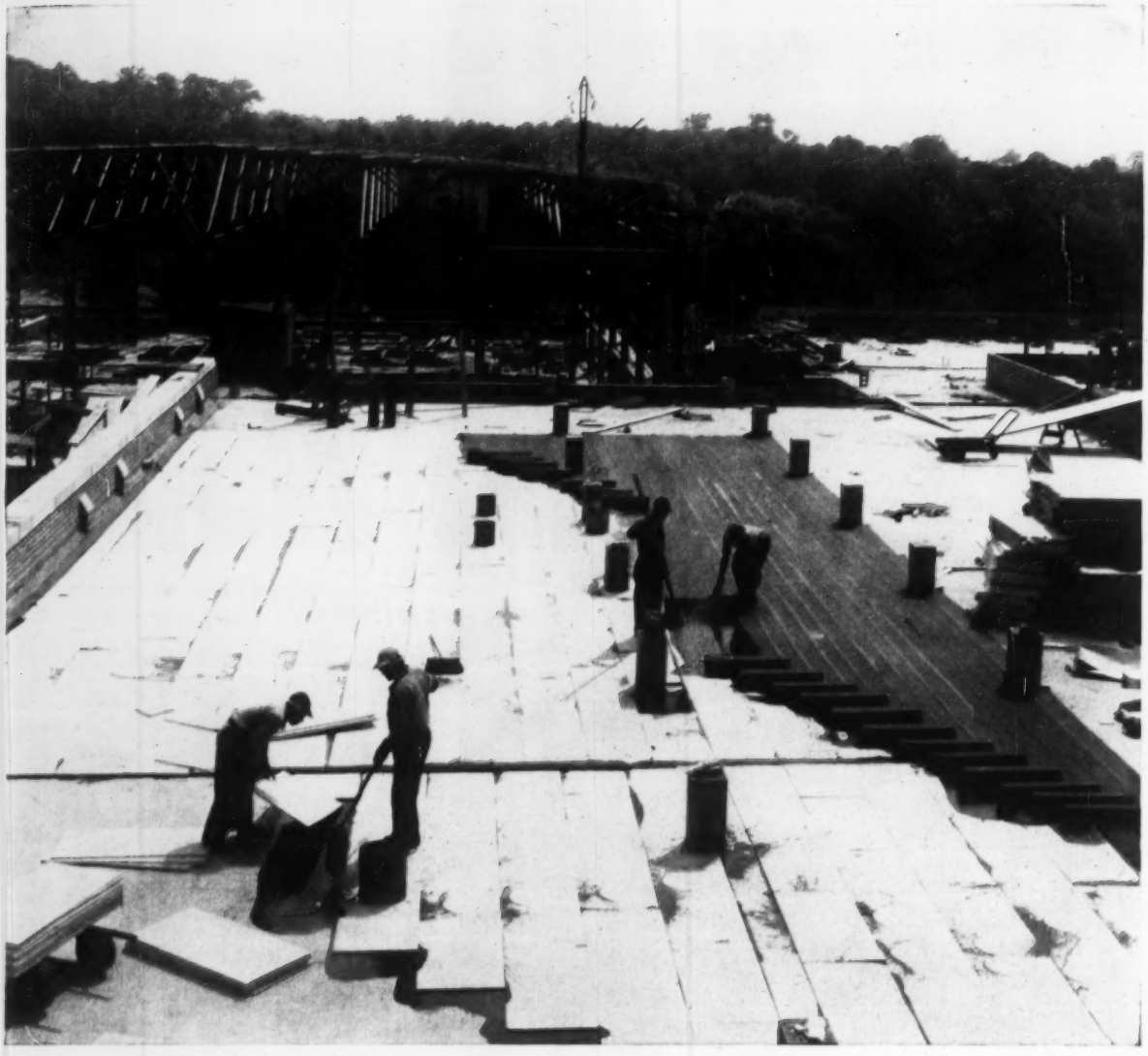
You can weld a full range of stud sizes up to ½" diameter.

And it's NELSON ENGINEERED! That means you can *depend* upon your NS-10 to perform under rugged, continuous use. The NELWELD trademark, of course, reflects 18 years of stud welding experience.

Write for a descriptive folder—and try the NS-10 when you're at the Metals Show in Chicago. Booth No. 1476.

**NELSON STUD WELDING,** ***Division of Gregory Industries, Inc., Lorain, Ohio***

NELWELD



Armstrong Temlok "Certified C" Roof Insulation is precision-cut and accurately sized to guarantee snug, heat-tight joints.

# How the strength of roof insulation can reflect on your job specifications

Strength . . . often underestimated in specifying roof insulation . . . can have a decided influence on the quality of a roofing job—and reflect on your judgment as a specifier. That's why many architects and engineers prefer Armstrong "Certified C" Temlok Roof Insulation.

Installation crews can walk on it, push loaded wheelbarrows, rest mopping buckets without endangering the future watertightness of the roof. A sturdy fiberboard material, Temlok Roof Insulation provides a firm base for felt courses so that heavy roof traffic won't damage the protective felt covering. Under similar traffic conditions, resilient roof insulations may "give" enough that even heel impact punctures or weakens the felt and leads to eventual roof failure. This is especially true on fluted metal decks where roof traffic often causes softer types of insulations to indent deeply along the valleys of the deck.

Damage to roofing felt, soon hidden from view, eventually will have to be repaired. Repairs not only may create financial liabilities but they also can cause great inconvenience to the client and reflect on the specification of the over-all project. When you specify Armstrong Temlok Roof Insulation, you are protected against this kind of responsibility.

**For complete information** on Armstrong Temlok Roof Insulation, write to Armstrong Cork Company, 3810 Wallace St., Lancaster, Pennsylvania.

**Armstrong ROOF INSULATIONS**

Temlok® Asphalt-Impregnated Temlok Corkboard

Representatives of the roadbuilders explained that if the registration requirements are not changed, the extra costs involved will be reflected in higher bids on future state highway projects.

• **Concessions obtained**—The state did make two concessions, which will remain in force "pending further advice and final decision". They were:

• If the equipment is operated on any occasion over a dedicated and open public highway without a one-trip permit, the owner will have to pay a full registration fee.

• Where such equipment is operated exclusively on off-highway work, including new highway construction, repair or alteration, the equipment will not be seized for non-payment of registration fees pending clarification of the registration law.

The contractors hope that agreement can be reached with the attorney general and other state officials through conferences. However, the Northern California Chapter of the Associated General Contractors has authorized its general counsel to bring a court suit if necessary to obtain a change in the law.

## State Blocks Contracts With Engineering Firms

Vermont's Attorney General has refused to approve four State Highway Department contracts with outside engineering firms because he feels the department and the State Personnel Board has failed to make a strong effort to recruit engineers for the roads department.

Frederick M. Reed, noting the high cost of retaining engineering firms, added that he will not certify any more such pacts until he is certain that a more intensive recruitment program has been initiated. Three of the four contracts were with the firm of Webster-Martin, Inc., of South Burlington, a firm that receives a large percentage of the state's design and survey work.

Control of such agreements was given the attorney general by the 1957 legislature which adopted a bill requiring that any contract for employment with the state be certified by the attorney general. The law was designed to prevent state agencies from circumventing the merit system when hiring employees.

Mr. Reed said that the state's $25 million road construction program—largest in its history—will not be hindered by this action. There already are 35 road projects completed with respect to design and engineering.

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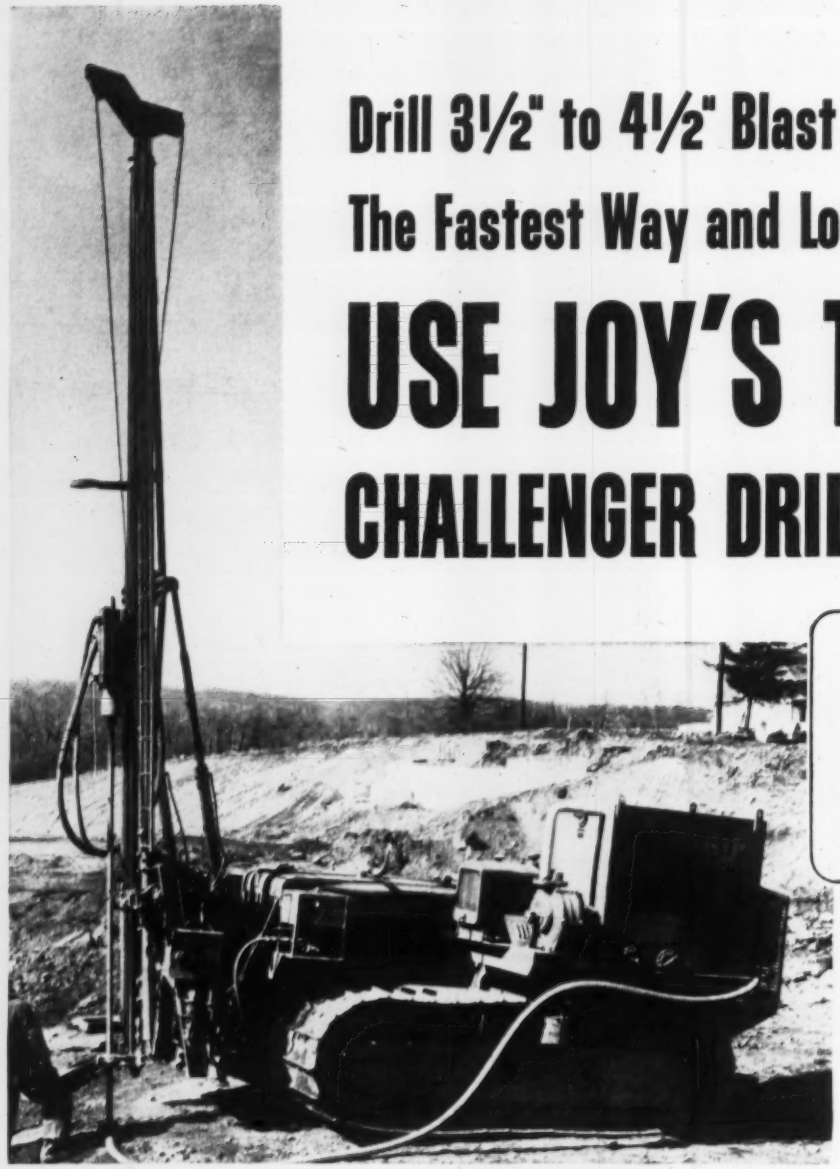

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This proven percussion blast-hole drill package, pioneered by Joy, replaces three or four wagon drills . . . *and still boosts the tonnage of broken rock per shift.* The rugged heavyweight drill, the most powerful in its class, sinks 3½" to 4½" holes to depths of 50' faster than any other machine of its type. It fits to a crawler-mounted tractor, truck, or any mobile chassis that will support its weight. You can select used equipment for mounting the rig, keeping initial cost low. Mast and levelling jacks operate from double-acting, hydraulically controlled cylinders. Operating range from 15° to either side of vertical and 15° forward of vertical permits quick setup and hole spotting. Get the specs and full story on this mobile, money-saving rig by writing to ***Joy Manufacturing Company, Oliver Bldg., Pittsburgh 22, Pa.*** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

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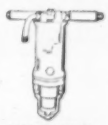
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# Unions for Engineers

### Final plans to be drawn for parent organization

The foundation for a national organization of engineering unions will be laid this week, when the Steering Committee of the proposed federation, Engineers and Scientists Guild, convenes in Los Angeles for a two day meeting on Oct. 12.

Spawned out of dissatisfaction with Engineers and Scientists of America, ESG got its start at the May convention of ESA and expects to have an initial membership of 22,000 engineers, architects, scientists, draftsmen and allied engineering craftsmen.

At the Oct. 12 meeting, a proposed constitution for ESG will be finalized and the date and agenda for the founding convention of ESG will be set.

Unlike ESA, which has become an organization of professional employees and which has been criticized for its lack of militancy in collective bargaining, ESG will be "dedicated to the principles of true collective bargaining for engineering employees." Pursuant to its proposed constitution, ESG will encourage organizing campaigns and will assist its member units in collective bargaining, educating its members in the principles and practices of bargaining and actually participating in member bargaining negotiations when requested to do so. A defense fund, similar to those used by trade unions, is proposed in order to help member units engaged in strikes and similar actions. At the same time, ESG proposes to furnish member units with statistical information on salaries and other factual matters of an economic nature, and to promote legislation favorable to engineering employees on both state and federal levels.

The founders of ESG have stated the belief that "prestige for engineering employees will come only when they unite effectively to establish salaries, standards and recognition commensurate with their contribution to society. . . . If the present trend toward an engineering surplus continues, there will be a greater incentive to form engineering unions, first to maintain existing standards and later to raise them to a level commensurate with education and training. Under these circumstances groups of employees will be seeking assistance from a national engineering union, rather than organizations such as the NSPE, the technical societies and similar groups which have been ineffective in raising economic standards. Obviously, if there is no group such as ESG in existence they will turn to production unions."

Chairman of the ESG Steering Committee—and probable president of ESG—is Charles N. Hall, a New York electronics engineer who headed the Sperry Gyroscope Engineers Association. Vice chairman is Stanley Nelson of California, an engineer with Lockheed Aircraft and head of Engineers and Scientists of California. Mr. Nelson's group includes collective bargaining units representing employees of Pacific Gas & Electric and those in the County and City of Los Angeles Municipal Engineers Association.

## Boilermakers Negotiate A Seven-State Contract

A tentative labor contract covering 5,000 boilermakers who do field construction work in seven western states and Alaska has been reached in San Francisco.

Details of the agreement, which has a two year term and which provides for an automatic wage increase next year, will not be disclosed until 15 locals of the International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers have completed the ratification procedure. Balloting is expected to be finished this week.

Bargaining agent for the 360 employers affected by the agreement is the Western Field Construction Negotiating Committee.

Union demands included 2½ cents more for health and welfare (members now get 7½ cents), paid holidays (none now provided for), and transportation pay on a zone basis. Present contract grants $4.50 a day subsistence pay outside a 40 mi radius of locals but does not provide for transportation pay within that radius.

New contract, if ratified, will become effective Oct. 1.

## Overseas Group Is Formed For Construction Workers

A new membership organization, to be known as "Overseas Americans," has recently been formed in New York City. The new organization is to include as members only construction and engineering workers who are employed and interested only in overseas projects. The organization is to act as a clearing house for collecting, analyzing and exchanging information pertaining to foreign construction and engineering projects now being built or proposed.

Herbert U. Ross, president, and C. Foster, secretary and treasurer, said that monthly bulletins will be issued containing latest information on foreign construction projects that may be of interest to members.

New York headquarters of the new organization are at 7 W. 44th St., New York 36, N. Y.

# Prevailing Wages Hit

### Open shop employers ask repeal of Baltimore law

Associated Builders and Contractors of Maryland, an employer association that has sought to preserve the open shop, last month asked the City of Baltimore to put construction work back "in the free market" by repealing the city's prevailing wage ordinance.

Assailing the ordinance as an "unnecessary tax burden," the association submitted its request for repeal to the mayor and members of the City Council.

The employers contend that minimum rates established under the ordinance are union rates and that they are higher than the "true going rate." Result, says the employers, is that municipal construction work is costing the city $4 million a year more than it should.

Passed in 1945, the ordinance requires contractors on city projects to pay wages at least equal to those "prevailing" in the area for the various construction trades.

(The open shop group has long been at odds with the AFL-CIO building trades and vehemently fought a 1955 attempt by union employers and the building trades to stabilize labor conditions on construction projects by avoiding use of nonunion subs by union generals (ENR Nov. 10, 1955, p. 82). And last month the same group asked the Senate Select Committee to investigate anti-trust and Taft Hartley "loopholes" that lend success to efforts aimed at preventing use of union and nonunion workers on the same project.)

In its letter of protest to Baltimore officials, the Associated Builders and Contractors of Maryland implied that the present schedule of prevailing rates—which was recently increased 15 to 20%—results from "political pressure" the unions are able to exert.

Several years ago the association tried to have the ordinance upset in court but failed because it didn't show that the Board of Estimate, which sets the rates, had acted arbitrarily.

# OFFICIAL PROPOSALS

Bids: October 31, 1957

## New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Canal Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 31st day of October 1957, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

| County | Contract No. | Name | Miles | Type | Deposit | Estimated Cost of Work |
|---|---|---|---|---|---|---|
| DISTRICT No. 1, G. L. NICKERSON, District Engineer, 353 Broadway, Albany 1, New York | | | | | | |
| Albany (Rte. 9) | RC 57-172 | Loudon Pt. 2, S.H. 119<br>Loudon-Crescent S.H. 5555 | 1.75 | Asphalt Concrete = 1.67 mi.<br>Misc. Work = 0.08 mi. | $36,000<br>Plans $10 | $672,000 |
| Schenectady | FAC 57-18<br>FASH 57-20 | City of Schenectady: Crosstown Conn.<br>Schenectady Crosstown Conn. Pt. 2 Proj. U-323(12) | 2.14<br>(0.88 Acc.) | 9" Cem. Conc. Pavt. 48' var. wide = 2.51 mi.<br>Asphalt Concrete = 0.28 mi.<br>Misc. Work = 0.23 mi.<br>1 Hwy. Sep. Comp. I-Beam 69' | $102,000<br>Plans $25 | $1,847,000 |
| DISTRICT No. 2, L. KETCHUM, District Engineer, 109 No. Genesee St., Utica 1, New York | | | | | | |
| Montgomery & Oneida | M 57-10 | Barge Canal Terminal at Utica<br>Barge Canal Terminal at Fonda | 0.44 | 7' Wire Mesh Fencing and Gates | $600<br>Plans $10 | $10,400 |
| DISTRICT No. 5, E. G. H. YOUSMANN, District Engineer, State Office Bldg., 65 Court St., Buffalo, New York | | | | | | |
| Erie | FAC 57-19 | City of Buffalo: Kensington Expressway Sect. 1, Arterial Project U-377(13) | 1.73 | Demolition of Buildings | $32,000<br>Plans $10 | $573,000 |
| Niagara | FARC 57-173<br>FAC 57-20<br>FASS 57-15 | Sanborn-Lockport, S.H. 9094<br>City of Lockport: East-West Arterial Route (West Avenue Section)<br>City of Lockport: Upper Mountain Road Arterial<br>Upper Mountain Road<br>Project F-U-709(7); S-US-US(474)(1) | 3.81<br>(0.50 Acc.) | Asphalt Concrete Ty. 2A = 4.26 mi.<br>Misc. Work = 0.05 mi.<br>R.R. Sep. Plate Girder 77' | $140,000<br>Plans $50 | $2,515,000 |
| DISTRICT No. 7, R. W. SWEET, District Engineer, 444 Van Duzee Street, Watertown, New York | | | | | | |
| Clinton & Essex (Rtes. 9, 9N & 22) | FARC 57-166 | Chatonville-Keeseville, S.H. 651<br>Keeseville-Ausable Chasm, S.H. 5056<br>Keeseville Village, S.H. 859<br>Project F-876(4), F-407(9) | 1.23 | Asphalt Concrete Ty. 1A = 1.18 mi.<br>Misc. Work = 0.05 mi.<br>Prestress Conc. Br. 75.5' | $45,000<br>Plans $15 | $804,000 |
| Clinton | FASS 57-14 | Picketts Corners-Chazy Lake Road, Pt. 2<br>Project S-437(1) | 5.94 | Bituminous Surface Treated Gravel | $22,000<br>Plans $25 | $410,000 |
| DISTRICT No. 8, K. G. RAUER, District Engineer, Pleasant Valley Road, Poughkeepsie, New York | | | | | | |
| Westchester | FICWE 57-1<br>HRPRC 57-1<br>FINETC 57-4 | Interstate Route Connection No. 529<br>Cross Westchester Expressway (Rye Sect.)<br>Hutchinson River Parkway, New York State Thruway-New England Sect. Sub. NE5 (Interchange with Cross Westchester Expressway)<br>Project I-110(14), I-1068(17) | 5.95<br>(8.95 Acc.) | 9" Cem. Conc. Pavt. 2 @ 36' Var. Wide = 13.99 mi.<br>Asphalt Concrete = 0.91 mi.<br>1 Hy. Sep. R.C. Rigid Frame 146.2'<br>8 Hy. Seps. Comp. I-Beams 177.5', 187.8', 161.5', 206', 176.5', 179.3', 267', and 255.8'<br>1 R.C. Triple Box Bridge 55.3'<br>1 R.C. Twin Box Bridge 33.5'<br>1 Hy. Sep. Comp. Weld. Girder 358.1'<br>1 R.R. & Hwy. Sep. Comp. Beam and Girder 294.7' | $850,000<br>Plans $100 | $15,500,000 |

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115-(Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft of certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

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Bids: October 28, 1957.

## Constructing New Water Treatment Plant

FOR
THE WATER WORKS DEPARTMENT
OF
THE CITY OF ATLANTA, GEORGIA

Sealed proposals for Constructing New Water Treatment Plant will be received by the Purchasing Agent of the City of Atlanta, Georgia, at the City Hall. Bids will be opened publicly and read publicly at a joint meeting of the Purchasing Committee and the Water Committee of the City of Atlanta, Georgia, and must be deposited with the undersigned prior to the beginning of said joint meeting at 2:00 P.M., E.S.T., October 28, 1957. No bid may be withdrawn after the scheduled closing time for receipt of bids for at least sixty (60) days.

Work to be Done: The work to be done consists of constructing a new Raw Water Pumping Station and Water Treatment Plant for an initial daily normal capacity of twenty million gallons per day.

The work is separated into four divisions, each of which may be awarded as a separate contract, as follows:

Division One: General Structural and Building Work for Raw Water Pumping Station and Water Treatment Plant, including Raw Water Supply Line approximately 1500 feet long, outside plant pipe lines and drain lines, and appurtenances.

Division Two: General Mechanical Work for Plant Operating Equipment and Instrumentation, including inside heavy operating piping and appurtenances.

Division Three: General Mechanical Work for Raw Water Pumping Station and Filtered Water Pumping Station, including pumping units, electrical power work, station piping, and appurtenances.

Division Four: Steel Wash Water Reservoir, and appurtenances.

Proposals: All proposals must be accompanied by a certified check, drawn in favor of the City of Atlanta, Georgia, in the amount of at least three (3%) per cent of the Lump Sum Bid for each division; such check representing a guarantee that the successful bidder, if awarded the contract, will promptly enter into a contract and furnish performance bond and payment bond as required by law and approved by the Attorney for the City of Atlanta, Georgia, each bond equal to one hundred (100%) per cent of the contract amount. This check shall be forfeited to the City as liquidated damages if the Bidder fails to execute contract and provide Performance Bond and Payment Bond within ten (10) days after notice that he has been awarded the contract. Each Bid submitted shall be accompanied by a written Financial Statement from a Bank or other Financial Corporation as to the Bidder's ability to carry out the contract if awarded to him.

A schedule of minimum wages to be paid all classes of labor and trades on the work must accompany all bids.

Plans, Specifications and Contract Documents: Plans, specifications and Contract Documents are on file at the office of the Purchasing Agent, Atlanta, Georgia, and at the office of Wiedeman and Singleton, Engineers, 760 West Peachtree Street, N. Y., Atlanta, Georgia, and may be obtained from Wiedeman and Singleton, Engineers upon written request and deposit of One Hundred Twenty-five ($125.00) dollars.

Upon submission of proposal and return of plans within thirty (30) days after the date of receiving bids, the full amount of the deposit will be refunded to each actual bidder. Upon return of plans, specifications and contract documents within thirty (30) days after the date of receiving bids, fifty ($50.00) dollars will be refunded to those other than actual bidders. The difference between the amount of the deposit and the amount of refund represents the cost of reproduction.

The right is reserved to accept or reject any and all bids, and to waive informalities.

CITY OF ATLANTA, GEORGIA
By: /s/ Ernest J. Brewer
Purchasing Agent

Bids: February 3, 1957.

## *Australia*
## *Snowy Mountains*
## *Hydro-Electric Authority*

Tenders are invited for Schedule of Rates contracts for furnishing labour and materials and performing all work for the construction in New South Wales, Australia of the following works:—

CONTRACT NO. 20,025—

TOOMA DAM, TOOMA-TUMUT TUNNEL AND APPURTENANT WORKS

Tooma Dam will be an earth and rockfill structure approximately 225-feet in height and containing some 1.3 million cubic yards of fill, with spillway channel and outlet works.

The Tooma-Tumut Tunnel will be approximately 47,000-feet in length and 12.5-feet in diameter. It will be unlined for a large proportion of its length, the remainder being lined with plain or reinforced concrete. Also included in the contract will be the construction of a control gate shaft, two underground control structures, four small concrete diversion dams and four intermediate intake shafts varying in depth from 200-feet to 400-feet. For the purpose of this contract the Tooma-Tumut Tunnel excludes the outlet into Tumut Pond reservoir.

CONTRACT NO. 20,033—

T.2 DIVERSION DAM
T.2 POWER STATION
AND APPURTENANT WORKS

The works include a concrete gravity dam about 150 feet high with a crest length of about 390 feet, about 7 miles of concrete lined tunnels 21 feet in diameter, headrace and tailrace surge tanks, two inclined partially steel lined pressure shafts each 11.5 feet in diameter and about 1,000 feet long, an access tunnel about 4,000 feet long and an underground power station with a machine hall 320 feet long, and 51 feet wide by 104 feet high and an underground transformer hall. The power station will contain 4 hydraulic turbine and generator sets each of 70,000 kilowatts. The supply and installation of hydraulic turbines and generators with appurtenant electrical equipment is not part of this contract.

LOCATION

The sites of the works for these contracts are in the Snowy Mountains Area in the south-eastern part of the State of New South Wales, Australia, at approximately longitude 148° 30'E and latitude 36°S. The elevation of the works varies between 1,500 feet and 4,200 feet above sea level.

TENDER DOCUMENTS

Tender documents, for each contract, comprising Form of Tender, Conditions of Tender, General Conditions of Contract, Draft Form of Agreement, Schedule of Rates, Table of Estimated Quantities and Amounts, Specification and Drawings may be obtained by prospective Tenderers on or after 5th October, 1957, on application to:—

Australian High Commissioner,
Fifth Floor,
Royal Bank Chambers,
106 Sparks Street,
OTTAWA, Canada

Australian Consulate-General,
Fourth Floor,
International Building,
Rockefeller Center,
636 Fifth Avenue,
NEW YORK, U.S.A.

Australian Consulate-General,
206 Sansom Street,
SAN FRANCISCO,
California, U.S.A.

Liaison Officer,
Snowy Mountains Hydro-electric Authority,
c/o United States Bureau of Reclamation,
Federal Center,
DENVER, Colorado, U.S.A.

Tender documents may be obtained on the payment of Ten Pounds (Australian) for each set of documents for each Contract. Four additional sets of documents for purposes of tendering will be provided free of charge at the time of inspection of the site.

PRELIMINARY DEPOSITS

A preliminary deposit of £A10,000 payable at Sydney, New South Wales, Australia must be lodged with each tender.

INSPECTION OF SITE

Tenders are required to inspect the site of the works and should communicate with the Snowy Mountains Authority, Cooma, New South Wales, Australia, regarding detailed arrangements.

GENERAL INFORMATION

For its own purposes the Authority has compiled certain information regarding the geology, hydrology and meterology of the region and general information concerning local conditions. The information is not part of the tender documents. It will be made available to Tenderers when they inspect the site.

SPECIAL QUALIFICATIONS REQUIRED OF TENDERERS

Consideration of tenders is dependent upon Tenderers having a background of successful achievement in the execution of similar large civil engineering works and possessing technical and other resources necessary to complete the work successfully within the contract period.

ALTERNATIVE TENDERS

Within four weeks the Authority will be inviting tenders for the construction of:—

Contract No. 20,034
Murrumbidgee-Eucumbene Tunnel
Tantangara Dam
and Appurtenant Works

and the closing date for the receipt of tenders for Contract No. 20,034 will coincide with the closing date for Contracts Nos. 20,025 and 20,033.

Tenders are invited to submit alternative tenders conditional on the Authority accepting their tenders for more than one contract.

SUBMISSION OF TENDERS

Tenders for the contracts must be submitted in duplicate in accordance with the Conditions of Tendering, enclosed in sealed envelopes appropriately endorsed with the contract number and name of the work tendered for, and addressed to:—

The Business Manager,
Snowy Mountains Hydro-electric Authority,
Post Office Box 332,
COOMA NORTH, N.S.W., Australia

The tenders must be lodged in the Tender Box at Head Office of the Authority at Cooma or be sent by pre-paid post in time to be delivered in the ordinary course of mail by 12:00 noon on Monday, 3rd February, 1958.

K. See,
Business Manager.

Bids: November 14, 1957.

## *Invitation to Qualified Contractors*
## *Metropolitan Sewer District*
## *Louisville, Kentucky*

Sealed Proposals for construction of Ohio River Interceptor, Section E, in Jefferson County, Kentucky, will be received at the office of Metropolitan Sewer District, 412 West Market Street, Louisville, Kentucky, until 12 o'clock noon Central Standard Time on November 14, 1957, at which time they will be publicly opened and read. Project provides for construction of approximately 4,200 lin. ft. of 8-foot sewer and appurtenant work requiring about 1,000 lin. ft. of tunneling. Alternate bids to be received on monolithic concrete semi-elliptical sewer and precast concrete pipe circular sewer in open cut and/or tunnel. Plans, specifications and information for Bidders will be available October 16, 1957, at the office of the District or may be examined at the office of Metcalf and Eddy, 1300 Statler Building, Boston, Mass., which will be furnished to prospective bidders upon the deposit of $50.00 for complete set of Plans and Specifications. Said deposit will be refunded upon return of the Plans and Specifications in good condition within 30 days of the date of opening of bids. Bidders proposal must be accompanied by a certified check in an amount of Sixty Thousand ($60,000.00) Dollars, on Louisville, Kentucky, or New York City banks, payable to the Metropolitan Sewer District. The District reserves the right to reject any or all bids or waive any informality in any bid and to accept any proposal considered by the District to be on the whole the best.

LOUISVILLE AND JEFFERSON COUNTY
METROPOLITAN SEWER DISTRICT
Louis J. Hermann, Sr.
Chairman

Bids: November 4, 1957.

## *Charlotteburg Reservoir Project*

OFFICE OF THE DIRECTOR OF THE DEPARTMENT OF PUBLIC WORKS OF THE CITY OF NEWARK, NEW JERSEY
City Hall, Newark, N. J.
Date: October 4, 1957

Job No. 4163 Division of Water Supply

Sealed Proposals will be received at 10:00 A.M. Eastern Standard Time on Monday, November 4, 1957, by the Director of the Department of Public Works in Room 309, City Hall, Newark, New Jersey, and then and there at 10:00 A.M. publicly opened and read for the following work which is a part of the Charlotteburg Reservoir Project.

WHARTON AND NORTHERN RAILROAD RELOCATION, CONTRACT CRP-3.

The work to be done under this Contract involves the relocation of approximately three miles of the Wharton and Northern Railroad. The relocation will start at the New York, Susquehanna and Western Railroad near Newfoundland, north of Irving Meadows, then will run in a southeasterly and easterly direction through the Meadows, parallel to the New York, Susquehanna and Western Railroad, to the Copperas Mountain, then will run in a generally southern direction along the east slope of the Copperas Mountain, finally connecting to the Wharton and Northern Railroad.

The work under this Contract also involves the construction of a new bridge to replace the existing bridge carrying the track of the New York, Susquehanna and Western Railroad across the Pequannock River, near Irving Meadows.

Certain trackwork will be done by the New York, Susquehanna and Western Railroad, and the Wharton and Northern Railroad, as more fully described in the Specifications.

Alternate Bids will be received for track constructed with new 100# rail; or with second hand 130# rail which can be procured from the Central Railroad of New Jersey or elsewhere.

The Drawings, Specifications, Instructions and Information for Bidders, the Bid or Proposal, Contract and Bond forms are on file and may be seen at the office of the Division Engineer, Division of Water Supply, Department of Public Works, Room 101, City Hall Annex, Newark, and at the office of Parsons, Brinckerhoff, Hall & Macdonald, Engineers, 51 Broadway, New York, New York. Copies may be obtained at the office of Parsons, Brinckerhoff, Hall & Macdonald upon deposit of twenty-five dollars, which sum will be refunded upon return of the Drawings and Specifications in good condition, or upon submittal of a formal Bid.

An Agreement of Surety signed by a Surety Company authorized to do business in New Jersey shall accompany each Proposal for execution of Contract on award thereof. Said Agreement of Surety shall be in conformity with the requirements specified in Instructions and Information for Bidders.

The Contract will be awarded to the lowest responsible bidder. The City reserves the right to reject any and all Bids or waive informalities therein.

All Proposals are subject to the requirements of all laws and City ordinances affecting same. The bidder's attention is called to Section 2.58 of the City Administrative Code.

By direction of the Director of the Department of Public Works of The City of Newark.

George W. Andress
Director, Department of Public Works

Bids: Oct. 23, 1957.

## *Triborough Bridge and Tunnel Authority*

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, N. Y., as follows:

Until 11 A. M. on Wednesday, October 23, 1957.

For Throgs Neck Bridge Contract No. TN-3, Two Tower Piers, Boroughs of Bronx and Queens, in the city of New York.

Piers will be founded on open dredged caissons located in East River.

Each bid must be accompanied by a deposit in the amount of $200,000.00.

Plans, specifications and contract documents may be purchased at the office of the Authority for $30.00 which will not be refunded.

Bids: October 22, 1957.

## Power Authority of the State of New York Niagara Power Project

ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY
OF
180,000 KVA THREE PHASE POWER TRANSFORMERS
FOR
LEWISTON POWER PLANT
SPECIFICATIONS NO. PA-N-25003
NIAGARA CONTRACT NO. NP5

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the furnishing and delivery thereof f.o.b. Model City, New York, of 180,000 kva, three phase power transformers for the Lewiston Power Plant in Lewiston, Niagara County, New York, until 10:30 A. M. Eastern Daylight Saving Time on the 22nd day of October, 1957, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York, 19, New York, at which time and place proposals will be publicly opened and read aloud.

Bids will be received for 13, 7, or 6 power transformers and associated equipment in accordance with the bidding schedules.

Delivery of power transformers will be required beginning on or before October 1, 1959.

Bids will not be restricted to American manufacturers.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, at 18th Floor, the Coliseum Tower, 10 Columbus Circle, New York 19, New York upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents and Five ($5.00) dollars per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the maximum price bid for any bid schedule.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

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Prequalification Date: October 17, 1957

## Board of Education Bureau of Construction

Notice Re: Prequalification Forms for Contractors
APPROVED AS TO FORM
Acting Corp. Counsel

NOTICE IS HEREBY GIVEN THAT
The Superintendent of School Buildings, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, N. Y., will receive applications for prequalification from contractors who may wish to submit bids for the proposed hereinafter specified contracts as follows:
general construction, plumbing and drainage, heating and ventilating, and electrical work and lighting fixtures for the modernization of Public School 179, Amsterdam Avenue and West 101st Street, Borough of Manhattan.
general construction, plumbing and drainage, heating and ventilating, and electrical work and lighting fixtures for the modernization and conversion of Public School 148, Ellery Street, between Delmonico Place and Throop Avenue, Brooklyn, N. Y.
Prequalification application forms will have to be secured from and must be submitted to the Superintendent of School Buildings, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, N. Y.
Bids, when advertised, will be received from prequalified bidders only.
Time for submitting prequalification applications by contractors will expire on Thursday, October 17, 1957.

WILLIAM H. CORREALE
Superintendent of School Buildings
Design and Construction

Dated: October 1, 1957

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Bids: October 28, 1957

## Invitation for Bids

1. Sealed proposal addressed to the Board of Water Commissioners, Wallingford, Connecticut for building and furnishing equipment for a complete filter plant at Wallingford, Connecticut, will be received at the office of the Wallingford Water Department, Wallingford, Connecticut until 2:00 p.m. Eastern Standard Time on October 28, 1957, and at that place publicly opened and read aloud.
2. Copies of all documents may be examined at the office of the Wallingford Water Department, Wallingford, Connecticut and copies thereof may be obtained upon deposit of twenty-five dollars for each set: which deposit will be refunded upon the return of each set in good condition within ten days after date of opening of bids.
3. The performance bond to be furnished by the bidder awarded the Contract shall be for the full amount of the Contract price. The Board of Water Commissioners reserves the right to waive technical defects in the bids or to reject any and all bids. Each bid must be accompanied by a bid bond or certified check to the order of the Water Department, Borough of Wallingford for an amount not less than 5% of the total bid. Bidders will be given permission to withdraw any bid after it has been deposited with the Board of Water Commissioners, provided the bidder makes his request in writing to the Board of Water Commissioners prior to the time of opening of any bids for this project.

Board of Water Commissioners
William Ulbrich
William G. Shute
George Hallenbeck

Vincent Mascia
Superintendent
September 30, 1957

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Bids: Oct. 30, 1957.

## Triborough Bridge and Tunnel Authority

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, N. Y., as follows:
Until 11 A. M. on Wednesday, October 30, 1957.

For Throgs Neck Bridge Contract No. TN-4A, Bronx Anchorage Foundation and Superstructure. The bid must be accompanied by a deposit in the amount of $250,000.00.

and

For Throgs Neck Bridge Contract No. TN-4B, Queens Anchorage Foundation and Superstructure. The bid must be accompanied by a deposit in the amount of $300,000.00.

Foundations will be open dredged caissons located in East River, in the City of New York.

Bidders may submit bid for either one or both of the above contracts.

Plans, specifications and contract documents may be purchased at the office of the Authority for $30.00, which will not be refunded.

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Bids: November 8, 1957

## Galeton Borough Authority

Sealed proposals will be received at the office of the Galeton Borough Authority, Galeton, Pennsylvania, until 8:00 P.M., E.S.T., on the 8th day of November, 1957, for furnishing of all necessary labor, materials, equipment, and performing all work for the construction of a Sewage Treatment Plant and/or the construction of Intercepting Sewers and all appurtenances. Proposals will be publicly opened and read at the above appointed time.

Each proposal shall be accompanied by a certified check or bid bond in an amount not less than five (5%) percent of the total bid. Copies of the Contract Documents, including plans and specifications, may be obtained at the office of Hill & Hill Engineers, 8 Gibson Street, North East, Pennsylvania, or from the Secretary of the Galeton Borough Authority, upon deposit of Thirty ($30.00) Dollars for each set.

The Galeton Borough Authority reserves the right to accept or reject any or all bids.

THE GALETON BOROUGH AUTHORITY
Nicholas Ostrosky, Secretary

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Bids: October 22, 1957

## Contract BT-120.015

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUS TERMINAL
ALTERATIONS TO BAGGAGE COUNTERS

Sealed proposals for alterations to the baggage counters at the Port Authority Bus Terminal will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, October 22, 1957, at which time said proposals will be opened and read in Room 1108.

Contract Documents may be seen at the office of the Engineer of Design of the Authority, Room 1115, and copies will be furnished upon request. No deposit will be required but the documents shall be returned in good condition not later than forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, October 10, 1957

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### U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4974) will be received at Vernal, Utah until November 14, 1957, for furnishing labor and materials for Administration Building, Garage and Fire Station, and laboratory for Flaming Gorge Community Facilities, Colorado River Storage Project. Location in Daggett County, Utah. Principal items are constructing wood frame administration building about 36 by 112 feet, with basement; masonry garage and fire station about 30 by 100 feet; and wood frame laboratory about 39 by 54 feet. Buildings to be complete with electrical, heating, plumbing, compressed air systems, and bituminous surfaced parking lots. Completion time 350 days. For particulars, address Bureau of Reclamation, Vernal, Utah; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

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Department of Commerce, Bureau of Public Roads, September 30, 1957. SEALED BIDS will be received at the office of the Regional Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., OCTOBER 29, 1957, for Project 1A11, George Washington Memorial Parkway, Fairfax County, Virginia. Four-span Prestressed Concrete Girder Superstructure of 170' length to carry two 36' roadways, on concrete abutments with 940 cu. yd. Class A concrete, together with road work involving about 160,000 cu. yd. unclassified excavation, 4,800 cu. yd. gravel base, and 1,925 tons bituminous concrete base and pavement. Minimum wage rates have been fixed as required by law. Plans, specifications and disposal forms are available upon request at the address given above. H. J. Spelman, Regional Engineer.

Many contractors depend entirely upon the

**OFFICIAL PROPOSAL COLUMNS of Engineering News-Record**

for Opportunities to bid. They might not see your announcements if printed elsewhere

•

You undoubtedly want their bids on your contracts. Make sure of them on your next contract.

•

The cost is only $2.10 a line per issue.

OFFICIAL PROPOSALS
Continued from opposite page

Bids: October 15, 1957

### *Power Authority of the State of New York Advertisement for Proposals for the Construction of the Seaway Power Facilities*

NEAR MASSENA, ST. LAWRENCE COUNTY, NEW YORK
SPECIFICATION NO. PA-5-11043
ST. LAWRENCE CONTRACT NO. 41

NOTICE TO CONTRACTORS: THE POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of the Seaway Power Facilities near Massena, St. Lawrence County, New York, until 10:30 A.M. Eastern Daylight Saving Time on the 15th day of October, 1957, at the Authority's office, 18th floor The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be publicly opened and read aloud.

The principal items of work are estimated:

40 wood pole structures—All materials furnished by the Contractor.

3 units of power supply for tower obstruction lighting—All materials except transformers furnished by the Contractor.

The work shall be completed on or before May 15, 1958.

Plans, Specifications and Proposal Forms may be obtained only from the Power Authority of the State of New York, the Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Twenty-Five ($25.00) dollars for initial set of Contract Documents and Fifteen ($15.00) dollars for each additional set, no part of which will be refunded. Two sets must be returned with each bid.

Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the office of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, for the inspection by prospective bidders.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than twenty (20) percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: October 29, 1957

### *Contract 39*

ALLEGHANY COUNTY SANITARY AUTHORITY
SEWAGE TREATMENT PLANT

Sealed bids or proposals for Contract 39 for constructing the chimney at the Pittsburgh Sewage Treatment plant will be received at the office of the ALLEGHANY COUNTY SANITARY AUTHORITY, 701 Civic Building, 200 Ross Street, Pittsburgh 19, Pennsylvania until 2 P.M. E.S.T. on Tuesday, October 29, 1957, and then publicly opened and read.

Drawings and contract documents may be examined and obtained at the office of the AUTHORITY, 701 Civic Building, 200 Ross Street, Pittsburgh, Pennsylvania. A deposit of one hundred dollars ($100) will be required on each set of drawings and contract documents taken which will be refunded on receipt of a bona fide bid and return of the drawings and specifications in good order within sixty (60) days. Only fifty dollars ($50) will be refunded to those who return the drawings and specifications in good order within sixty (60) days after the bidding date but do not submit a formal bid.

Bid security shall be furnished by certified check or bid bond for ten (10) per cent of the bid price. The successful bidder must furnish a performance bond and a labor and material men's bond each for 100% of the contract price.

The right is reserved to reject any or all bids.

ALLEGHANY COUNTY SANITARY AUTHORITY
Edmund S. Ruffin, Jr., Chairman

READ THE OFFICIAL PROPOSAL COLUMN OF
**ENGINEERING NEWS-RECORD**
THIS WEEK AND EVERY WEEK


# HIGHWAY ENGINEERS

## SURVEY – DESIGN – STRUCTURAL

*Offices*

**South Bend, Ind.** **East Lansing, Mich.** **Wheeling, Ill.**

***Benefits***

**Company pays Hospital Insurance, including dependents, vacations, Profit-Sharing-Retirement Plan. Low Personnel turnover. Salary advancement periodically with your advancement in ability.**

## CHAS. W. COLE & SON

**220 W. LaSalle Ave.** **South Bend, Ind.**



## REQUIRED FOR OFFSHORE CONSTRUCTION

**One Electrical Superintendent**
**One Mechanical Superintendent**

Must take charge of all field construction work and have engineering background to estimate work when required.

*Send resume or apply in person*

**PETER KIEWIT SONS CO.**
545 South Broad St. Trenton, New Jersey



# PROJECT MANAGER

For international construction company to handle foreign road building contracts and negotiations. Permanent position in New York City. Foreign travel necessary. Applicant must have field supervision experience on large highway and bridge building projects. Position will require negotiations with clients and engineers. Applicants should preferably be in 40-55 age bracket. Engineering degree desirable. Send complete details of experience and education to

**E. L. O'NEILL**
**Raymond Concrete Pile Company**
**140 Cedar Street, New York City**



## PROCESS EQUIPMENT ENGINEER

To prepare process flow diagrams and equipment specifications for raw materials handling and iron and steel production facilities.

Some engineering experience required, preferably in a metallurgical industry. Operating experience desirable. Engineering degree required.

WRITE TO OR CALL
G. VICTOR HOPKINS

**ARTHUR G. McKEE & CO.**
2300 Chester Ave., Cleveland 1, Ohio
Telephone TO-1-2300



## PLANNERS

**Community Planner IV.** New. $7,170-$8,550 (excluding longevity salary increases). Education equivalent to graduation from a university planning program with the equivalent of at least 5 years' experience in planning work. Considerable experience in dealing with public groups essential. Direct the Master Plan Program for this city and its extraterritorial area.

**Community Planner III.** New. $6,220-$7,240 (excluding longevity salary increases). Education equivalent to graduation from a design program in planning with the equivalent of 4 years' experience in planning work. Assist in the preparation of Master Plan reports for the city and its extraterritorial area.

**Personnel Department**
**404 City-County Building**
**Madison 9, Wisconsin**


Additional Employment Advertising on following page

## HIGHWAY AND STRUCTURAL ENGINEERS - DESIGNERS - DRAFTSMEN

Several years' experience in highway or bridge design work preferred but not necessary if educational background is good. This firm of Consulting Engineers is anxious to employ men or women who desire long range permanent work, who want to develop as professional engineers and who are eager to accept ever increasing responsibility.

Besides well developed training courses the company offers vacations and holidays with pay, sick leave, blue cross, free life insurance, overtime, and an employee profit sharing plan.

Positions in the above categories available in permanent company offices at Chicago and San Francisco.

*Please reply giving experience record to*

**DE LEUW, CATHER & COMPANY**

150 NO. WACKER DRIVE — *Consulting Engineers* — CHICAGO 6, ILLINOIS

## Highway Engineers - Designers & Draftsmen
## Bridge Engineers - Designers & Draftsmen
## Architectural - Designers & Draftsmen

Permanent employment for qualified men. Ample opportunity for advancement based on merit; plus excellent retirement program, group life insurance, hospitalization, paid vacations and holidays. Salary commensurate with experience.

Architectural openings in Rochester, Pa. Highway & Bridge openings in Pennsylvania, Maryland, Mississippi, Ohio & West Virginia.

Air Mail Resume To: R. L. SHAW, *Personnel Director*

**MICHAEL BAKER, Jr., INC.** Baker Bldg. Rochester, Pa.

## JOB OPPORTUNITY

EXPERIENCED EARTH MOVING EQUIPMENT SERVICE MANAGER.

UNDER 38 YEARS OF AGE.

MUST BE ABLE TO HANDLE SERVICE MANAGEMENT PROBLEMS OF LARGE SCALE OPERATION.

ONE OF WORLD'S LARGEST HEAVY EARTH MOVING EQUIPMENT DEALERS, IDEALLY LOCATED IN WORLD'S FINEST CLIMATE.

COMPANY BENEFITS AND PROFIT SHARING PLAN.—SALARY OPEN.

*SEND QUALIFICATIONS AND PHOTO TO*

P-6083 Engineering News-Record, 1125 W. 6th St., Los Angeles, Calif.

## PROCESS ENGINEERS

McKee has permanent opportunities for Chemical Engineers experienced in process design for Petroleum and Chemical Plants.

Send detailed resume to
G. VICTOR HOPKINS

**ARTHUR G. McKEE & Co.**

2300 Chester Ave., Cleveland 1, Ohio

## ARCHITECTURAL ENGINEER

**Architectural Engineer between ages of 25 and 35 with interest in design of industrial buildings and structures.**

**Excellent opportunity with consulting engineering firm in Middle West. Liberal benefit plans and good working conditions.**

**Send resume of education and experience with statement of salary requirements to:**

P-3222, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

## CIVIL ENGINEERS

Permanent position with consulting engineering firm in Corvallis, Oregon. Wide variety of interesting work in the design of water supply and distribution, water treatment, sewers, pumping station and sewage treatment facilities. Men with college degree and one to five years design experience desired. Pleasant living conditions close to work in college community. Give references, experience and starting salary expected in letter to:

**Cornell, Howland, Hayes & Merryfield**

P. O. Box 612, Corvallis, Oregon

## WATER POWER ENGINEER

Southwestern firm seeking competent engineer to head group engaged in investigations, economic studies and designs of hydro-electric, flood control and water supply projects. Experience in earth and concrete structures, tunnels, control work, etc. mandatory. Must be in good health, aggressive and willing to travel as required. Submit complete resume. Immediate acknowledgement.

P-6298, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

## SOIL ENGINEER

**With field experience in Earth Dam Construction and 10 years total experience in Soil Mechanics for position on Consulting Engineers Staff in Western Turkey. Expected duration 18 months. Living allowance plus small partly furnished house. Send education and experience resume with salary requirements to**

P-6090, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

*REPLIES (Box No.): Address to office nearest you c/o This publication Classified Adv. Div.*
*NEW YORK: P. O. Box 12 (36)*
*CHICAGO: 520 N. Michigan Ave. (11)*
*SAN FRANCISCO: 68 Post St. (4)*

### POSITIONS VACANT

**Wanted—Experienced Bridge Foreman for** position with expanding Michigan contractor. Applicant must be able to handle men and organize work on bridge construction. Write, stating experience, age, and references, plus expected beginning salary: Canonie Construction Co., South Haven, Mich.

**Wanted: Carpenter foreman thoroughly familiar** with bridge construction. Must understand plans. Respond to publication. P-6123, Engineering News-Record.

**Superintendent experienced in heavy sewer &** water main construction under difficult conditions, by N. Y. State Contractor. Permanent position for qualified, responsible person looking for advancement with established firm. P-6165, Engineering News-Record.

**University Career for Engineers—A number** of teaching posts are open at a Canadian Engineering College in the fields of Civil, Electrical and Mechanical Engineering. The academic term extends from September 15th to May 1st and summer months are free for study, research or professional practice. Teaching loads run at 6 to 9 lectures and 3 to 9 laboratory hours, with a maximum of 15 hours per week. Salaries are open, depending on qualifications. Good pension and medical plans. Prime present requirements are in the fields of hydraulics and electronics but engineers in any of the three major fields are invited to inquire. P-6229, Engineering News-Record.

**Chief Engineer: Progressive Structural Steel** Fabricator employing 100 people, located in midwest has immediate opening for licensed engineer experienced in steel fabricating industry. Salary open. Apply with picture and complete resume of experience to: P-6175, Engineering News-Record.

**Wanted: Man with Initiative and Know How** to manage Reinforcing Fabricating Department of an aggressive midwest fabricator. Must be qualified to Estimate, Sell, and be able to train Draftsmen to detail placing drawings. This is an opportunity for the right man. Reply to P-6279, Engineering News-Record, listing complete information on Education and Experience. Salary open.

(Continued on page 88)

*When Writing Your Ad*

Provide an indexing or subject word.

Write it as the first word of your ad.

If it is a Position Wanted or Position Vacant ad, make the first word the kind of position sought or offered.

This will assure proper classification in the column.

The right is reserved to reject, revise or properly classify all Want Advertisements.

*Proper Classification increases the possibility of Prompt Returns*

## CIVIL ENGINEERS

Positions in California State Government in a variety of locations throughout the State for recent college graduates.

### HIGHWAY

Office and field work in California's dynamic highway program.

### BRIDGE

Design and field work in California's multimillion dollar bridge program.

### SANITARY

Engineering control of water supply and waste disposal, air pollution and industrial hygiene.

### HYDRAULIC

Engineering studies and design on California's growing water problems.

### NATIONWIDE INTERVIEWS

Junior positions—no experience

**$481 to $530 a month**

Assistant positions—2 yrs. experience

**$530 to $644 a month**

Positions open at these levels only. U. S. citizenship required.

**Send resume to: C. S. Warner, Supervisor, Section E, 801 Capitol Ave., Sacramento 14, Calif.**

## ENGINEERS

Long established firm of consulting engineers with world-wide practice needs both beginners and experienced civil, electrical, mechanical and foundation engineers for interesting work on large dams, powerplants, and river control works. Permanent positions. Liberal employee benefits. Starting salaries dependent on qualifications. Please send complete resume to Hugo Niemi, Personnel Manager.

**HARZA ENGINEERING CO.**

400 W. Madison St. Chicago 6, Ill.

## CIVIL ENGINEER

Young civil engineer interested in broad application of civil engineering.

Excellent opportunity with consulting firm. Liberal benefit plans and good working conditions. Location Middle West.

Send resume of education and experience with salary requirements to:

P-3228, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

## *Are you the* RAILWAY CIVIL ENGINEER *we're looking for?*

Caterpillar Tractor Co. is experiencing the greatest expansion in its history. 1956 sales topped $686 million; new facilities point to a future without limit.

**You could share this future** if you are a graduate civil engineer with 5 years' experience in a supervisory capacity on railroad maintenance projects, or if you have been a Resident Engineer (or comparable position) in railroad construction.

**Your responsibilities** would include contact with railroad executives and Caterpillar Dealer personnel, as well as the broad application of Caterpillar products on railroad construction and on roadway maintenance projects.

**Your salary** will be determined by your background and by your previous job experience.

If you are between 30 and 39, personable, enjoy social contacts and traveling, and are excited at the prospect of a rewarding future, write or call:

MR. P. C. PERRY
Employment Dept. RCE
Caterpillar Tractor Co.
Peoria, Illinois

## CIVIL *Engineers*

**Work and live in wonderful WISCONSIN**

*A rapidly expanding highway program offers:*

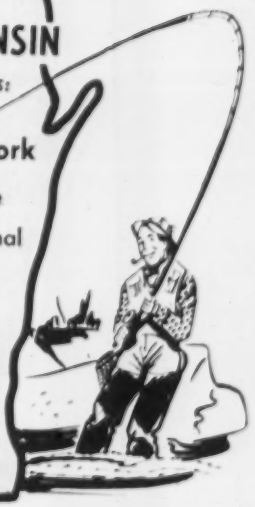
**Permanent civil service positions**
**Rapid advancement Challenging work**

Starting salary based on experience

Civil engineering degree or professional registration required.

*Write to:*

Personnel Officer
**State Highway Commission of Wisconsin**
**State Office Building**
**Madison 2, Wisconsin**



## STRUCTURAL DESIGN

Major producer of steel buildings has opening for design engineer. Experience with cold formed plates and sheets helpful. Permanent postion in Midwest. Send resume.

P-6224, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

## COMMUNITY PLANNER II

$5,722-$6,622 (excluding longevity salary increases). Education and experience equivalent to graduation from a design program in planning. For work involving phases of the Master Plan and Urban renewal planning. City Personnel Dept., 404 City County Bldg., Madison 9, Wis.

## EMPLOYMENT OPPORTUNITIES

### POSITIONS VACANT

**Senior Cost Engineer familiar with the Uniform** System of Accounts for Electric Utilities. Duties will consist of analyzing completed major construction projects for an Electric Utility. Experience with the Federal Power Commission or a State Public Service Commission would be desirable. Some experience with the Property Record Department of any Electric Utility would also be an asset. Indianapolis Power and Light Company, Employment Department, 1230 West Morris St., Indianapolis, Indiana.

**Engineers for municipal and industrial water** supply, sewerage and treatment projects. Opportunities for permanent connection with long established firm of consulting engineers in mid-west. Both E.I.T.'s and engineers considered. Full information and reference in first letter requested. P-5889, Engineering News-Record.

**Nationally known southern engineering firm,** has opening potential for Chief Engineer. Graduate Engineer, age 45-55, experienced in engineering organization and administration, with thorough knowledge and experience in industrial, commercial and institutional design and construction work. Give detailed historical and professional records, availability and salary requirements. All inquiries confidential. P-6067, Engineering News-Record.

**Heavy contractor, N. Y. State, needs man** to assume charge of take off, purchasing, engineering, expediting. Requires sound background & responsible field experience in heavier water, sewer & treatment plant work. Excellent opportunity for qualified person seeking & able to advance. Reply to P. O. Box 147, Colvin Station, Syracuse, N. Y.

**Chief Engineer, Chief Draftsman, Checkers.** Fabricator of heavy structural steel for bridges, office & hospital bldgs, etc. Location eastern U. S. Top salaries for qualified men with at least 9 yrs. exp. in the preparation of structural details for shop fabrication. Opp. for advancement into management. Fringe benefits. Chief draftsman must be familiar with design. Salary $15,000 & up. P-6323, Engineering News-Record.

**Civil Engrs., Bridge Designers, Draftsmen.** Design work. Steven Antonoff Cons. Engrs., 806 Park Ave. Bldg., Detroit 26, Mich.

**The State of New York has openings for the** positions of Assistant Civil Engineer and Assistant Civil Engineer (Design). Degree and 2 years of experience required. Starting salary $6140 with automatic increases to $7490. Full civil service status; offer excellent promotion opportunities, attractive retirement plan and other liberal employee benefits. State residence not required. For further information write to Box 78, Recruitment Unit, New York State Department of Civil Service, 39 Columbia Sreet, Albany, New York.

### POSITIONS WANTED

**Civil Engineer—30 years in heavy construc**tion, all phases, with contractors and consultants. PW-6094, Engineering News-Record.

**Chief Structural Engineer, MASCE, BS, New** York license. Thirty years in design and construction. Proven administrative and technical ability. Fully qualified to supervise design of industrial buildings, bridges and other structures. Will consider association with architect, available immediately. PW-6228, Engineering News-Record.

**Project Manager or General Superintendent.** Thirty-five years experience in heavy construction work on domestic and foreign jobs; highways; dams; airfields; powerhouses; concrete and steel structures. Resume and references upon request. Available after October 1. PW-6174, Engineering News-Record.

**Civil Eng. 31, married, B.S., M.S. in struc**tures. 6 years experience in construction and estimating. Recent graduate of accredited law school. Top fourth of class. Will consider any opportunity. PW-6117, Engineering News-Record.

**Field Engineer—Asst Superintendent college** graduate 9 years experience building and industrial construction seeks position northeastern US resume on request. PW-6220, Engineering News-Record.

### POSITIONS WANTED

**Structural Engineer, 24, E.I.T., BCE M.I.T.,** Experience: 1 yr. field, 1 yr. office. Prefer Middle West location. PW-6262, Engineering News-Record.

**Cost Engineer: Experienced construction** civil engineer desires responsible position. Can set up budgets, chart of accounts, equipment and plant cost analyses, detailed graphic cost and manhour reports and segregation of extra work costs for claims. PW-6263, Engineering News-Record.

**Plant Engineer: Heavy construction civil** engineer experienced in design and detailing for formwork, and temporary construction facilities such as cableways, cofferdams, caissons, concrete equipment and job services seeking office position. PW-6267, Engineering News-Record.

**BSCE EIT 23 eighteen months experience on** inspection and administration of construction contracts for the Navy. Varied construction experience while attending college. Seeks start with general contractor in Chicago area. Available 15 November 1957. PW-6099, Engineering News-Record.

**Construction Executive: 20 years sound ex**perience, Engineering and Project Manager, Estimating, Supervision, Management. Industrial building construction and mechanical installations from customer contact to completion of projects. Desire permanent connection with expanding Utility on power plants or Engineering and Construction Firm. PW-6242, Engineering News-Record.

**Construction Superintendent. Buildings:—** Industrial, Commercial, Institutional, Churches, Etc: Field position only desired, age 55—Over 25 yrs. experience. Eastern States preferred. Will travel for reliable contractor. PW-6253, Engineering News-Record.

**Structural Engineer-Architect. Two degrees,** licensed 3 states, 15 years experience. Handle Building, Engineering projects client to completion. Desire associateship with principal possibilities. Resume upon request. PW-6259, Engineering News-Record.

**Civ. Eng.; BCE, PE., 10 yrs. experience heavy** construction. Chf. estimator roads, bridges, paving, sewersc, gas & water lines, all types excavation. Bids, subs, costs, administration. N. Y., N. J., Conn. only. PW-6047, Engineering News-Record.

**Reinforcing steel chief draftsman, supervise** detailing for bar co., constr., or engr. P.E. design, est, selling exp. PW-6109, Engineering News-Record.

**General Supt.—Over 25 years experience in** commercial and industrial buildings, sewage disposal, highway bridges, overpasses, wharfs and docks. Also, experienced in handling correspondence, cost analysis, and coordinating job from start to finish. Can furnish well qualified assistant who has been directly under my supervision for last 14 years. Prefer work in southeastern states—would consider other. Presently employed—will be available October 30th. PW-6321, Engineering News-Record.

**Civil Engineer, 32, BS, MS (Structural).** Registered, 8 years varied domestic and foreign experience in teaching and in design, construction and maintenance of highways, railroads, bridges, chemical and petroleum process plants. Desires permanent position in Southern U. S. PW-6322, Engineering News-Record.

**Civil Engineer, 32, varied construction ex**perience. Field & Office. Seeks responsible position. PW-6324, Engineering News-Record.

**Civil Engineer, BSCE, 30, with lab and field** experience in asphalt, concrete, batch plant, soils, supervision and inspection of highway and airport construction desires permanent lucrative position. Will also consider sales. Prefer New England Area. Available Nov. 1st. PW-6294 Engineering News-Record.

**Gen. Superintendent available Oct. 15. In**dustrial or Commercial. Just completing 18 million dollar project. Age 44—References furnished by present employer. PW-6291, Engineering News-Record.

**Draftsman, experienced reinf. steel detailer** and structural draftsman, for engr. or const. co., metro. New York. PW-6313, Engineering News-Record.

**Construction Supt. General construction.** PW-6317, Engineering News-Record.

## SEARCHLIGHT SECTION


**STRUCTURAL ENGINEERING**
**ARCHITECTURAL ENGINEERING**
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-third year
**WILSON** *Engineering Corp.*
College House Offices HARVARD SQ., CAMBRIDGE, MASS

**WANTED**
**TEMPER MILL**
Capacity from 50" to 60" Wide Strip Steel. Prefer Coilers with Capacity of 25,000#. Also Electrics and Drive.
**FURNACE CHARGER**
Floor Type, 5 to 7½ Ton.
**PRESS BRAKES**
1200 and 1400 Ton, 10' between Housings.
ARNOLD HUGHES COMPANY
2765 Penobscot Building Detroit 26
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### SPECIAL SERVICE

**Steel and reinforced concrete detailing high**way spans buildings for architects engineers fabricators. SS-6038, Engineering News-Record.

### CONTRACT WORK WANTED

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Markings banded direct to steel protected by higher surface of multiple electroplatings.

Multiple coats of electroplating.

Rust resistant coating.

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BETTER MEASURE WITH LUFKIN

THE LUFKIN RULE CO., Saginaw, Michigan

397

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we have the type and size to best handle the job, dependent on material and equipment

Open-type grab buckets and link-type buckets for bridge cranes, fast-plant unloaders and large gantry cranes are available in capacities from 35 to 400 cubic feet.

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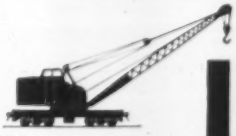


INDUSTRIAL BROWNHOIST CORPORATION
BAY CITY, MICHIGAN

185-A

## Satellite: Defeat and Challenge

NO ARGUMENT AND NO EXPLANATION can obscure the very cold fact that the United States—and with it, the free world—suffered a major defeat when Russia suddenly announced that it had a satellite swinging through near-space.

The importance of what the Russian engineers have done, aside from the data to be provided by the tiny sphere up above, cannot be lost on the rest of the world. They have beaten at their own game the engineers of a nation that prides itself on doing things faster, bigger, better than anyone else.

Militarily too, the implications are enormous. The U.S. hasn't yet announced a successful test of an Inter-Continental Ballistics Missile. And there are good grounds for belief that such a missile was used to launch the Red "Moon."

The Russian accomplishment can be explained—but not explained away. Of course, Mr. Kruschev doesn't have to justify expenditures to a recalcitrant and economy-minded legislature. Of course, in his kind of state, the entire economy can be mobilized, if need be, toward a special objective like this. And maybe that legendary military expert who complained that the U.S. had "caught the wrong Germans" was right.

But the satellite swings free above the earth just the same, gleefully sending its tiny code to watchers below, unmindful of whether they are jealous, or apprehensive, or proud.

For Americans, and particularly for professional men, whatever their professional degrees, this is a major challenge.

We must not, first of all, permit ourselves the luxury of a mistake we've often made before: That of beginning by under-rating our opponents, and ending by over-rating them.

The Russian scientists, engineers, production and technical people are quite obviously not shoeless, bearded, faintly comic characters. But neither are they or their captured employees supermen. They are obviously well-trained, well-rounded professionals at their work, capable of producing the very best.

And in that, we have the challenge.

This is no friendly scientific game we're playing. It could well be "for keeps." Americans have got to pull this game out of the fire.

The way to do it is to put our knowledge to work, as a team operation—without the bickerings between services and scientists that has so far distinguished our apparently unsuccessful attempts at missiles. Business and professional interests must also pool their knowledge for a common end, and stop their own secrecy and infighting. All industries and all professions—construction among them—must call for an end to complacency and must really work together.

All industries and professions can unite on other important objectives: First, considerations of economy cannot be permitted to save us money today that would be worthless under a foreign economy tomorrow. There must be an end to pound-foolishness in the nation's vital scientific efforts. Second, the importance of developing increasing numbers of scientists and engineers, made so obvious by this new Russian conquest, must be kept prominently in the public mind. There could be no more impressive evidence than existence of the Russian satellite to prove the importance of their policy of establishing engineers on a high plane—with the facilities and the rewards that inspire hard work. This has been the Russian policy, almost to the extent of glorifying the scientist. That it has paid off in Russia is now obvious.

## Step Toward Better Concrete

A DOCUMENT NOW BEING DISTRIBUTED by the Concrete Industry Board, Inc., New York City, may prove to be of great historical significance to the construction industry. Prepared by a committee of testing laboratories, the document is a "Manual of Recommended Practice for Inspection and Testing of Concrete Materials and Concrete." Its acceptance by designers and builders in the New York area would be a great forward step toward improvement of concrete quality through voluntary industry cooperation.

Among the important principles included in the document are these:

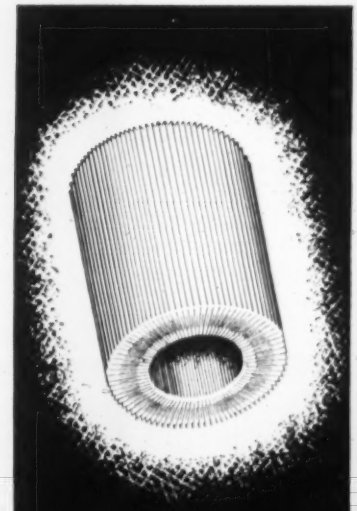
"1. The owner or architect and not the contractor should employ a qualified testing laboratory to carry out the requirements of the specifications.

"2. As a professional service the laboratory should not be engaged on the basis of competitive bidding."

These recommendations are aimed at improving laboratory services and thus eliminating one alleged source of poor construction. If adopted, these principles presumably would encourage selection of inspection and testing agencies on the basis of ability and experience and not solely on fees charged. Other recommendations set forth the duties of laboratory and inspection personnel.

Since representatives of testing laboratories served on the committee that developed the manual, these firms should be willing to adopt the recommendations. So success of this phase of the CIB program depends mainly on whether designers and builders adopt them.

Architects and engineers from now on should assume inspection and testing responsibilities and include in their contracts the costs of engaging testing laboratories. Contractors should refuse to accept these responsibilities. This is a first step by the CIB toward improvement of concrete construction. The rest of the country will be watching to see if New York designers and builders take it.



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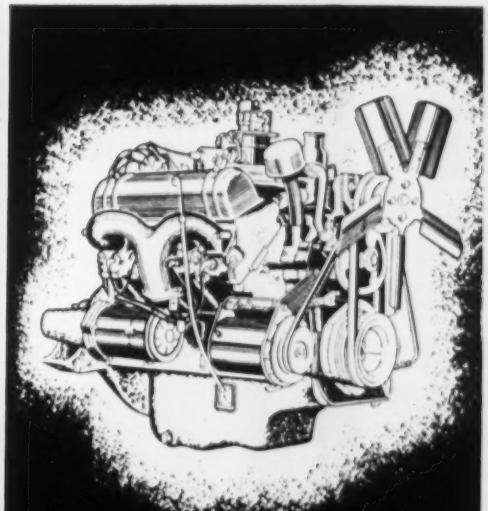

in this Ford Industrial Engine . . .

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In a Ford Industrial Engine, *every* drop of oil is filtered *every* time around! Harmful dirt and engine deposits are trapped, retained and removed completely when the replaceable cartridge is changed. This is how a Ford Full-Flow filter provides cleaner oil in bearings and on cylinder-wall surfaces . . . reduces engine wear up to 66% more than ordinary filters.

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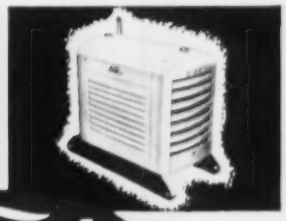

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